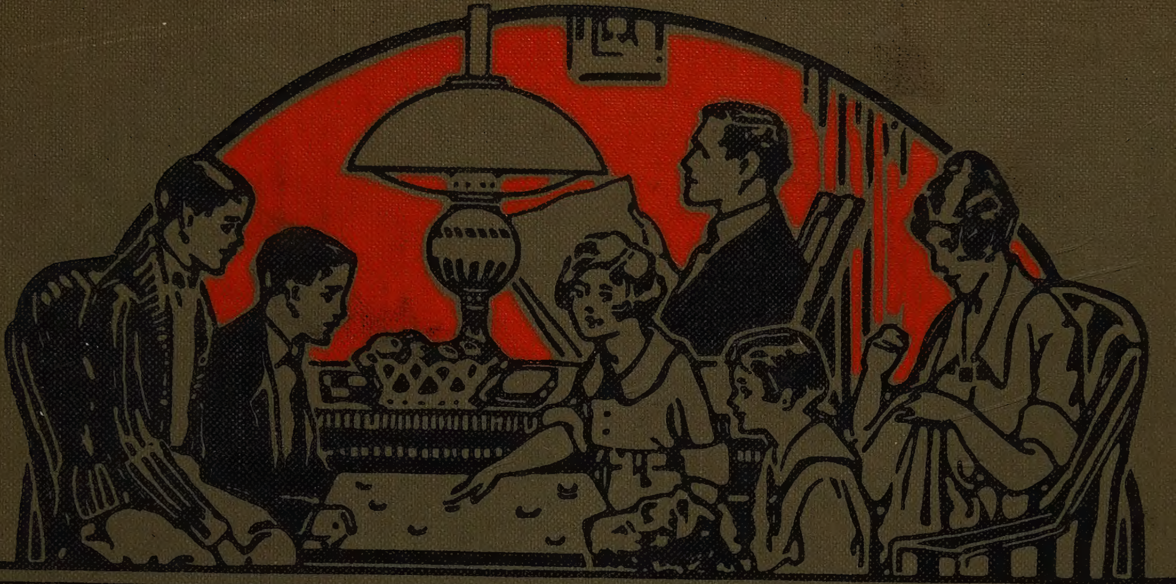
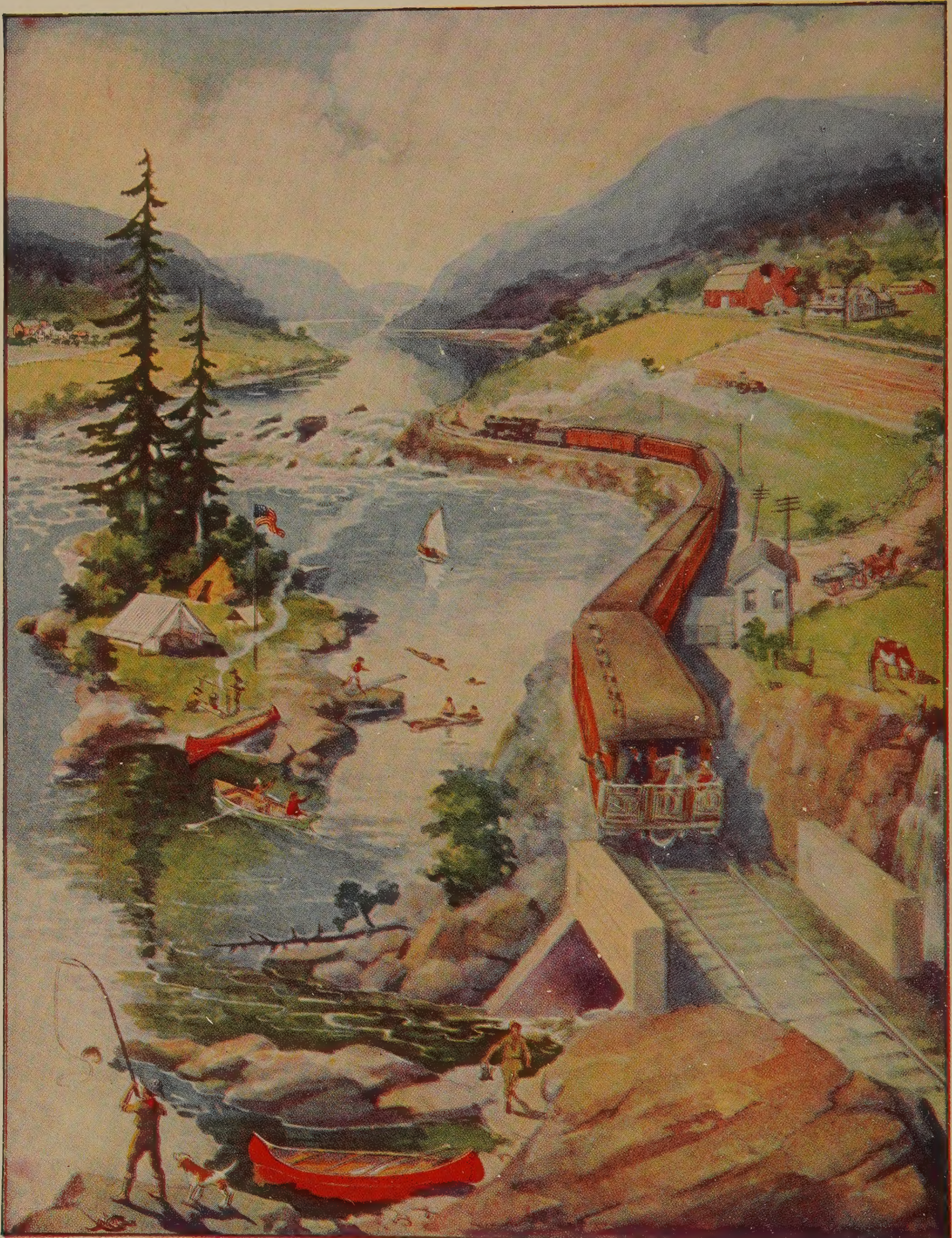


HOME FOLKS

J · RUSSELL · SMITH

A GEOGRAPHY
FOR
BEGINNERS

Leon Stewart



Jack's train goes up the river valley. Point to the rowboat, the raft, the sailboat, the rapids in the river, the falls in the creek, an island, a hill, and a mountain. How many other things in the picture can you name?

HOME FOLKS

A GEOGRAPHY FOR BEGINNERS

BY

J. RUSSELL SMITH, Ph.D., Sc.D.
PROFESSOR OF ECONOMIC GEOGRAPHY, COLUMBIA UNIVERSITY

AUTHOR OF
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"Our Industrial World"; "Human Geography," Books I and II

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Home Folks
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TO TEACHERS

A NEW PLAN

This book for beginners presents a new way to begin the study of geography. It does not attempt to describe the United States or any other country as a group of land areas or as political divisions. Instead it tells how some boys and girls live in the country and then how some boys and girls live in the city. It also gives a description of the country village and the country town. We all live either in the country, the city, the village, or the town. By describing some aspects of life in these *type places*, this book introduces our country and the study of geography.

The book might be considered as a *series of problems*—the problems being to discover how people live and make a living in each of these typical places.

HOME GEOGRAPHY

The teacher who is interested in beginning with home geography can use this book as a means of studying the home locality.

Teachers in all parts of the United States, and in other countries as well, can compare the life and the activities of their own locality with the *types* that are presented in the stories of the text.

In what respects is your neighborhood *like* the type presented in the text? How does your neighborhood *differ* from the type presented in the text? Questions and exercises are planned to help you make these comparisons.

The process of *comparison of localities* yields both *home geography* and *information about the type places with which the home environment is compared.* This is a distinct addition to the method which merely studies the home environment, or the method which merely studies other places. In fact, this *comparison* of the home environment with other typical localities will result in a more *thoughtful* and discriminating examination of the home locality and in a richer concept of the home locality than would result if it were being studied alone.

AVOIDANCE OF REPETITION

A geography teacher of wide experience recently asked a discouraging question in a national meeting. She said, "Most of the children in the lower grades come to us alive and interested and anxious to learn. By the time they reach the seventh grade most of them are listless and uninterested. What is it that makes them so?" A true answer was given by the boy when he said with a yawn, "Aw, I've had that before!" If a child finds the same plan and materials in his Beginners Geography and in Book I and Book II of the standard texts which follow, he naturally gets bored.

Nevertheless, most children must go over a given body of knowledge more than once in order to master the subject. The problems of furnishing suitable materials, methods, plans, and opportunities for this re-study are indeed difficult. But the child will proceed from this book to those geography texts that will follow with interest kindled, not deadened.

TO TEACHERS

THE ELEMENTS OF HUMAN GEOGRAPHY

This book has the form of a story, but it also contains many of the elements of geography as taught in American schools. Read the story thoughtfully and you will observe that the pages are full of *facts, definitions, ideas, and concepts* which make it a real *introduction to the more formal study of geography* as presented in the standard texts now in use in American schools.

The content of this book is not limited to utilitarian facts. Information about crops, products, trade, industries, and features of the land are included, but as the story develops, there is created an impression of life and living in the United States. After all, Geography is a study of people, and the other things are presented because of their value or their relation to people.

THE EXPERIENCE OF TEACHERS

Because *Home Folks* is written on a new plan, most of these lessons have been tested before publication. They were taught in schools in different parts of the United States, to various groups of children living in dissimilar neighborhoods. These extensive tests, mostly with third-grade children, have proved that the style and the material are within the comprehension of the children.

The enthusiasm of the collaborating teachers and pupils has been very gratifying. Their enthusiasm was the more convincing because the material had to be used in mimeographed form and without illustrations or question helps. The carefully selected questions, exercises, and illustrations will help to develop in the most natural way the child's first geographic concepts.

USE OF QUESTIONS AND EXERCISES

I beg that the questions and exercises be used with moderation. It was *not intended that any teacher should use them all.* The aim has been to give the teacher some *choice.* Some of the questions are suited to the country school, and some are suited to the city school. Teachers are urged to look over the questions before using them and to select those which are most suitable to the class and the locality.

VISUAL EDUCATION

This book introduces the child to his world. Therefore, it deals with many new facts, objects, processes, and ideas. To every child there will be many new things which he cannot see in reality, yet seeing is believing. Pictures aid visualization. This is a book of visual education. It contains more pictures than any other geography of its class. The pictures have been selected with the greatest care. Many of them have been especially drawn so that their educational value and interest might be enhanced.

Many persons in a position to know, are convinced that the illustrations in geography texts are not used as much as they should be.

Teachers are urged to see that each child who uses this book examines each picture, knows what it shows, and can tell about its relation to the story. The pictures are an integral part of the text.

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For aid in connection with testing these lessons in class and the preparation of questions, I am indebted to the following persons:

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Jack's train at full speed rushing through the night.

PART I

THE FARM HOME

THE JOURNEY

Jack Reed lived in New York. He had been born in the great city. He was in the seventh grade of the public schools.

When Jack's father was a boy he lived on a farm in the Middle West. He often told Jack about the farm. He told him about the country school which he had attended with his sister Alice and his little brother Jerry.

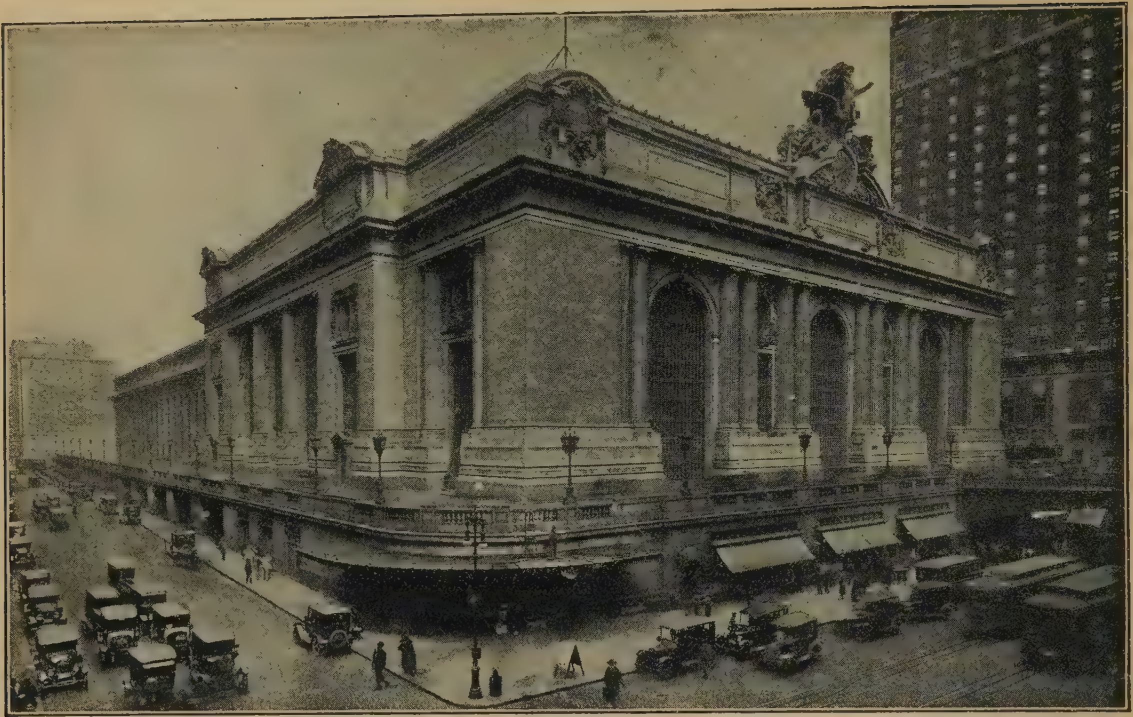
Jack could almost see the big barn, the horses, the cows, the orchard, the vegetable garden, the pasture field, the walnut trees, the pond where his father swam in summer, and the one-room country school.

Aunt Alice, with her husband, Uncle John, and their three children, Joe, Mary, and little Ned, lived on the old home farm. They all wanted to see Jack. So Aunt Alice wrote Jack a letter asking him to spend his summer vacation with them.

Jack had never been on a farm. He had never seen his aunt and cousins. He wanted very much to visit them.

"I wish you could go," said his father. "But the train fare is almost fifty dollars. This sum is more than your mother and I can afford to spend for your trip."

"I shall earn the money," said Jack.



Grand Central Station, New York. Jack's train started from this station. See how long it is. Page 118 shows how the trains come into it underground. How many stories has the building across the street?

"Well," said his father, "if you earn enough money before vacation time to pay for your railroad ticket to the old home, you may go. Your mother and I will buy your return ticket."

Jack got a job delivering orders after school and on Saturdays for Mr. Kolb, a grocer. Mr. Kolb's store was around the corner from Jack's home. Jack saved nearly all the money that he earned. When vacation time came he had enough money to pay his fare to the farm in the Middle West.

Jack had never been far from New York. Now he would be on the train all day and all night and a part of the next day.

Jack was very happy as he rode with his parents in the street car to the railroad station in New York. He felt very big when he bought a ticket for a journey through several states.

In the baggage room of the station was Jack's trunk. The express man had brought it. When Jack showed his ticket to the man in the baggage room, the man put a pasteboard check on the trunk and gave Jack another check. Jack put the baggage check and the railroad ticket in the inside pocket of his coat, so that he would not lose them.

Soon the train was off. This was the first time that Jack had ever been away by himself. He felt very big.

"I am glad that I am almost fourteen years old and can travel alone," he thought. "And won't it be fun to sleep on the train! I am a lucky boy, for I stay on this train all day and all night before I change cars."

For several hours the train ran along a wide river. Jack saw many boats on the river. He saw steamboats, motor boats, sailboats, rowboats, and canoes. On the other side of the river he saw low hills. Sometimes far away beyond the low hills he saw some very high hills or mountains.

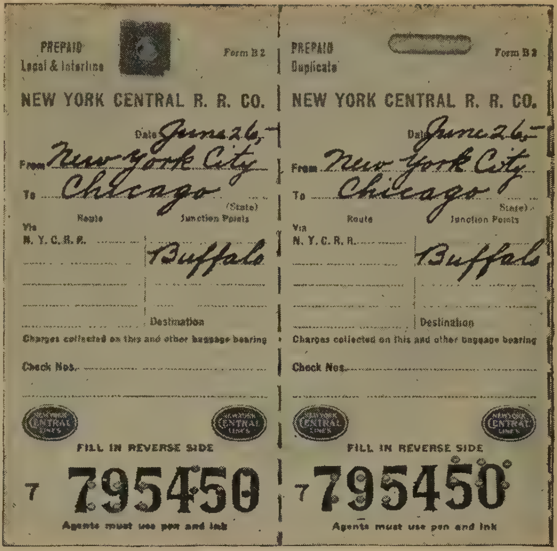
After a while the railroad left the big river and followed a smaller river. In some places the water ran swiftly over the rocks.

"Those are rapids," said the man who sat beside Jack. "If the rocks were higher there would be a waterfall."

"Why does the railroad run so close to the river?" Jack asked the man.

"Because there are high hills on each side of the river and only a little bit of level land along the river. The level land is the river valley. Railroads can be built more easily in valleys than in hilly country. Engines can pull heavier loads along an almost level valley than they can pull up and down the steep hills." For a long time Jack thought about what the man had told him.

At one place, where the river was wide, Jack saw an island. An island is a bit of land with water all around it. There was a tent on the island. Two boys in a boat were fishing.



PREPAID
Legal & Interline
Form B2
NEW YORK CENTRAL R. R. CO.
Date June 26
From New York City
To Chicago (State)
Route
Junction Points
Via
N. Y. C. R. R.
Buffalo
Destination
Charges collected on this and other baggage bearing
Check Nos.
FILL IN REVERSE SIDE
7 795450
Agents must use pen and ink

PREPAID
Duplicate
Form B2
NEW YORK CENTRAL R. R. CO.
Date June 26
From New York City
To Chicago State)
Route
Junction Points
Via
N. Y. C. R. R.
Buffalo
Destination
Charges collected on this and other baggage bearing
Check Nos.
FILL IN REVERSE SIDE
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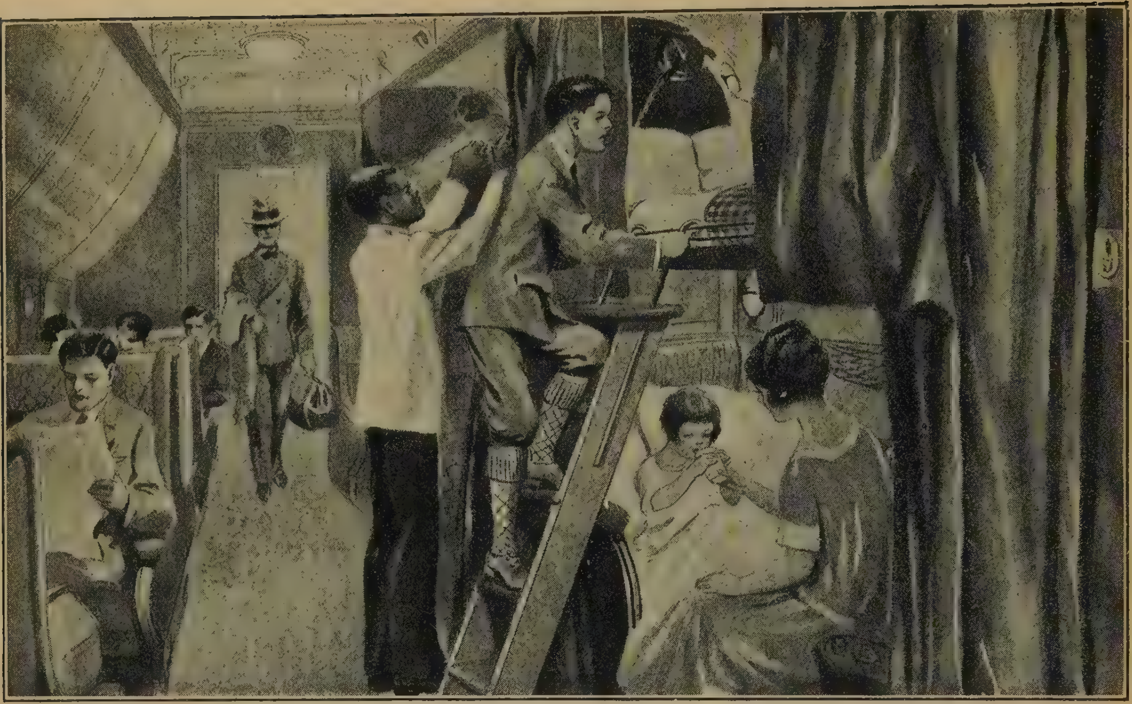
Can you tell how this baggage check was used?

They waved their hats as the train went by. Jack waved his hand to the boys. He noticed that they were Boy Scouts. He wished that he could go camping and have a boat.

Small streams and large streams flowed into the river. The train crossed over these streams on bridges. It passed through many villages and towns and several cities. It went through all the smaller towns without stopping. This was an express train. Express trains go as quickly as they can from one big city or town to another.

As it began to get dark Jack wondered where he was to sleep. He walked through the train. He could not see any beds. Soon a man, whom the passengers called *Porter*, began to unlock something above one of the seats. Jack noticed that the sides of the car, between the windows and the ceiling, were made of many curved pieces. Each piece was about



Jack climbs into his berth. The porter is letting down another upper berth. Across the aisle you can see how the berths look by day. Over Jack's pillow see the chain that holds up the berth. See the electric light for him to use after he closes the curtains.

as big as a door. The porter let down one of these doors until it was level.

X"That looks large enough for a bed," thought Jack. Behind the door were stored two mattresses, four pillows, and several blankets. These were enough for two beds. The porter brought sheets and pillow cases from a little closet at the end of the car. Soon he had made a neat bed overhead. This kind of bed is called an *upper berth.* By pulling the two car seats underneath together the porter made another bed or *lower berth.* He put one of the mattresses and two of the pillows on this bed. Then he hung thick curtains along the sides of the berths.

When the porter had finished his work he had made up a row of beds, two stories high, on both sides of the aisle. There were twenty-four beds.

Jack had an upper berth. He wondered how he could get into it. Soon the porter brought a ladder and held it while Jack climbed into the berth. Jack found a little hammock stretched beside his bed. The hammock was to hold his clothing. But how was he to get fresh air? There was no window for him to open as he did every night at home. He looked about. Then he spied a little opening or ventilator in the top of the car. He put his hand near the ventilator and felt the cool, fresh night air.

"What a funny place to sleep," thought Jack as he crawled under the

Breakfast in the dining car at fifty miles an hour.

covers. "Thum, thum, thum, thum," went the wheels on the tracks. Soon Jack was fast asleep.

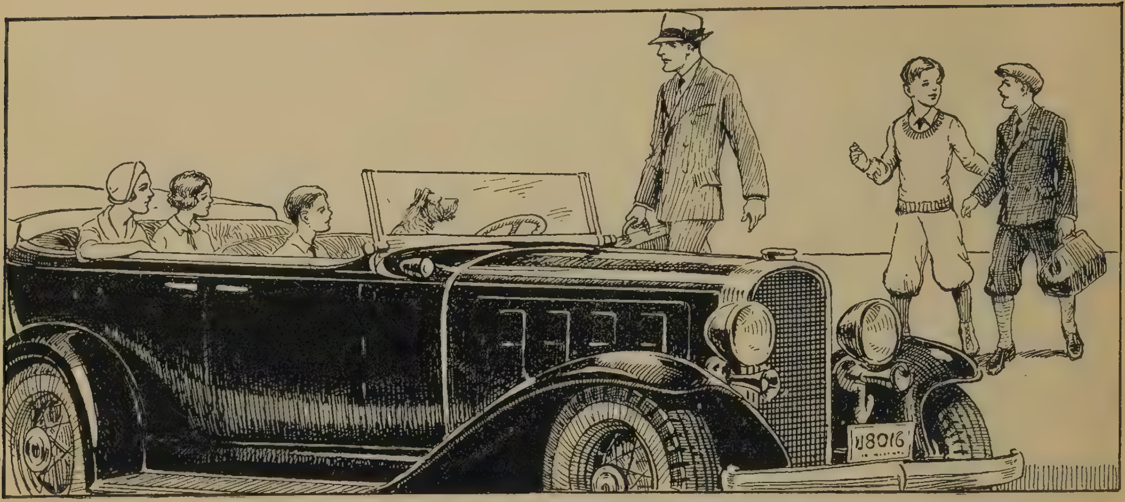
In the morning the porter brought the ladder to let Jack climb down. At the end of the car was a dressing room. Here Jack washed and finished dressing.

For supper Jack had eaten all the lunch his mother had given him. To get his breakfast he went to the dining car. This was a car that had tables and chairs where most cars have seats. At one end of the car was a tiny kitchen with a stove, refrigerator, and supplies of food. Two men in white caps and aprons did the cooking. Jack thought that the dining car was just like a restaurant on wheels. The waiter took his order and Jack was soon eating breakfast. He could see the country through the car window as he ate.

The train reached a big city at about the same hour it had left New York the day before. Jack left the car with the conductor. He was glad to find his Uncle John at the station to meet him.

Jack and his uncle got into a motor bus. They rode for twenty minutes through the streets of this big city. Jack looked out of the window. He saw elevated trains, trolley cars, and big stores.

"This must be a large city like New York," thought Jack. Finally the bus came to a stop before another railroad station. Jack and his uncle took another train. This was an express train for two hours. Then



Tell about this picture after you have read the story.

it became a way train, or local, for two hours more. It stopped at every little town along the railroad. It even stopped at some places where there were only a few houses, not enough for a town.

At last the conductor called out the name of Uncle John's station.

All of the Brown family were at the station to meet Jack. They shook him warmly by the hand. They seemed very glad to see him.

"Home we go," said Mr. Brown. They all climbed into the automobile. In a few minutes they were at the Brown farm.

THINGS TO THINK ABOUT

1. You have all seen wagons, automobiles, boats, and trains. These are used to carry people and many other things. Moving people and things from one place to another is called transportation. Tell how many kinds of transportation are told about in this story.

2. Who can name some other ways of moving people and things from place to place?

3. In how many different ways have you traveled?

4. Tell what you have seen while taking a journey.

5. Tell why baggage checks have numbers on them.

6. Bring a time-table to class and tell how to use it.

7. Tell three things that a conductor on a train does.

8. Why are railroads so often in valleys?

9. Did you ever see an island?

10. What does one need to get to an island?

11. Ask your teacher if you may have a class question box. You may write on a piece of paper any question that interests you about these stories. Put your question in the box. Have a time for a question club meeting, when the questions are read and answered.

12. What did Jack see in the streets of the city that can be seen in the streets of the large city nearest your school?

Along the road and over the hill to the Brown farm. One of Mr. Brown's neighbors lived on the farm shown in the picture.

THE FARMHOUSE

People live in many kinds of houses. After you have read this story tell your teacher if you have ever seen a house like the one Jack visited.

"There is our house," said Joe, pointing to a pretty white house with green window shutters. A neat whitewashed fence enclosed the yard. Joe got out to open the gate. In another minute the automobile was stopping at the side door.

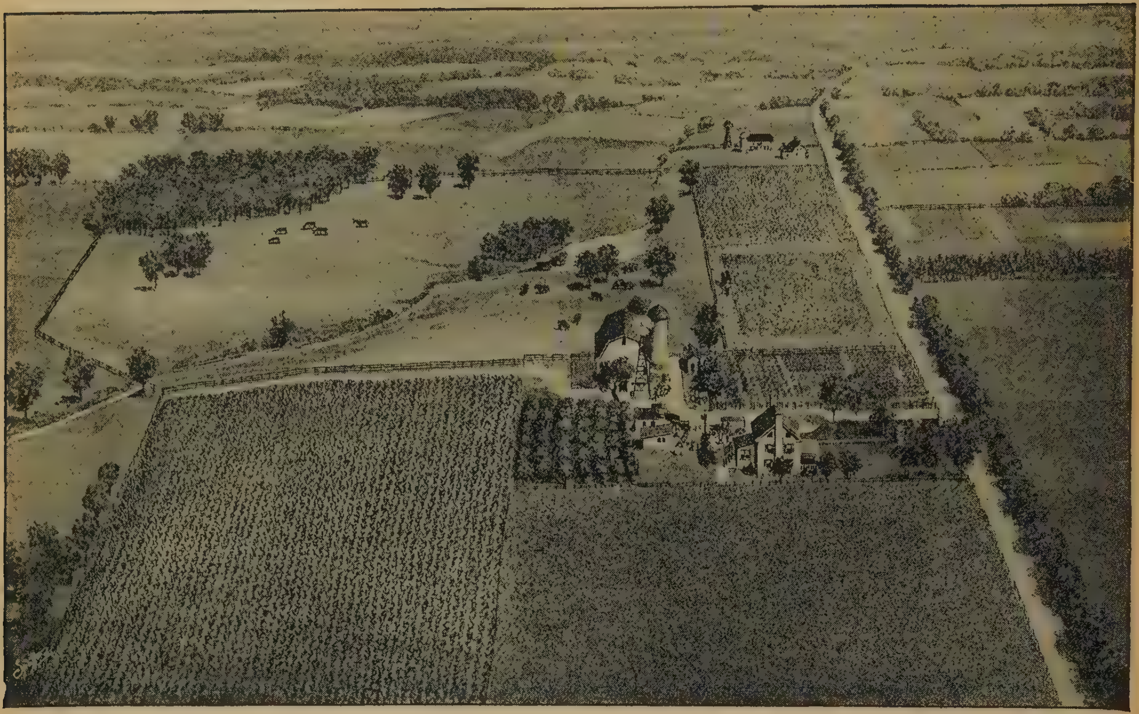
Jack got out. He set his suitcase down on the large porch. He looked at the farm buildings. He looked at the big trees that stood near the house. He saw more green grass in his Uncle John's yard than he had ever seen in many blocks in New York.

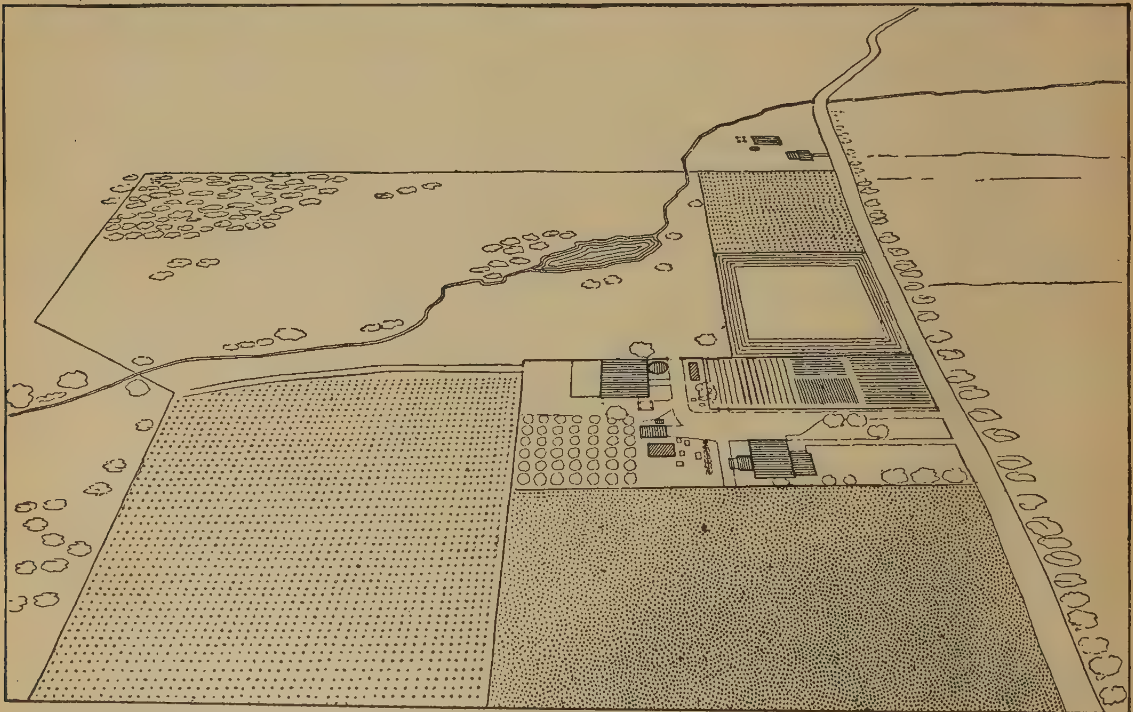
A neat gravel walk led from the porch to the front gate. Outside the gate was a mail box. The mail carrier left the mail in the box every day. The family put their letters in the box. The mail carrier took the letters to the post office.

Mrs. Brown and Mary entered the house. The boys and Mr. Brown went on back to the garage. Joe wished to show Jack the barn. He showed him the place where the horses and the cows lived. He showed him the large haymow where the food for the horses and cows was kept. He showed him Blackie, the calf. Blackie belonged to Joe. She had a black and white coat, and a black spot on her nose. Joe loved that calf, and the calf seemed glad to see Joe.

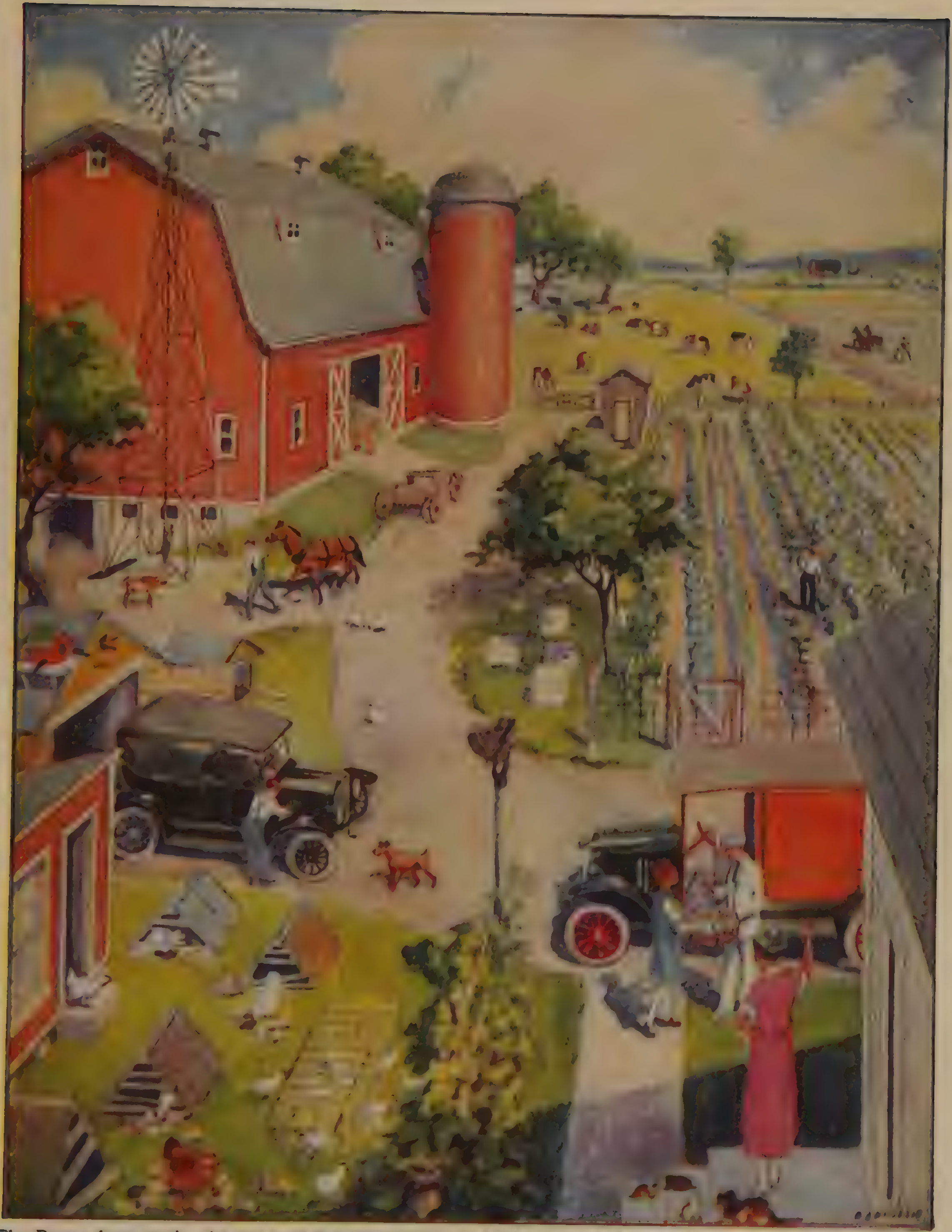
When they got back to the house, Joe took Jack up two flights of stairs to a room in the third story. The two boys were to have this room. Jack put on a khaki shirt and changed his best shoes for a pair of rubber-soled shoes. Then he was ready to begin life in the country.

Soon Jack and Joe were trying to

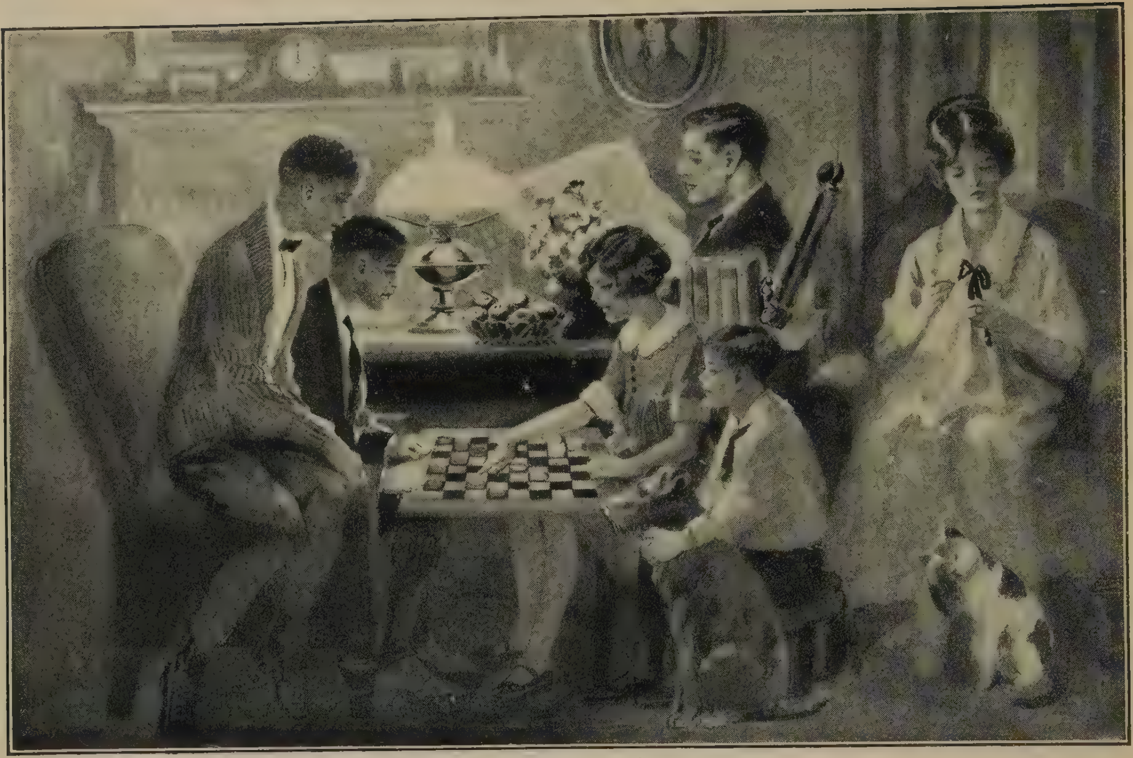




At the top, the Brown Farm as it looked to the man who flew over it in an airplane. At the bottom is a plan or map showing the same thing. See how many things in the picture you can also find on the map.



The Brown farm yard. As you read the story, look at this picture to find the barn, silo, corn crib, garage, bird house, hen house, chicken coops, arbor, robin's nest, dinner bell, garden, beehives, windmill, pasture field, Mary, eggs, huckster, Joe, Roy, calf, man plowing, and the Stark farm.



Jack's first evening on the farm.

see who could turn the best hand springs on the soft grass in the front yard. Each was glad to see that the other was a real boy.

As the boys were playing, Aunt Alice came out on the porch. She asked Joe to ring the supper bell. The bell was on top of a tall pole in the yard. Joe rang it by pulling a wire that was fastened to the bell. It was a big bell. It made so much noise that it could be heard half a mile away. The bell told Uncle John at the barn and Sam, the hired man, out in the field, that supper was ready.

Soon they were all seated around the table in the big farm kitchen. They had bread and butter, milk, broiled ham and gravy, potatoes, stewed rhubarb, apple butter, cookies, and strawberries.

Jack looked at Sam every time he had a chance. He had never seen a man with such red whiskers. Jack thought he had never been so hungry. He ate so much brown bread and apple butter, and he drank so many glasses of milk that he was a little ashamed of himself.

After supper Ned filled the box behind the stove with wood from the big pile of wood in the woodshed. Mary helped her mother clear away the supper and wash the dishes. Then she ran out to the chicken house to fasten the door for the night. Uncle John and Sam and the two boys pitched horseshoes in the yard.

Soon the sun went down behind the hill, and darkness came. Everyone went into the house and sat around the living-room table. Mr. Brown read the newspaper. Jack and Mary played checkers. Mrs. Brown sat near the table, making a dress for Mary to wear to a picnic.

"Will you please move the lamp a little nearer to me, Mary?" said her mother. "I need more light. Be sure to fill all the lamps with oil tomorrow."

"Father is planning to put in a light plant," Mary told Jack. "Several of the farms in this county have them."

"Gee, but it's quiet here," said Jack. "Seems queer to see nobody around but the family. Doesn't anyone ever come to visit you?"

"Of course," said Joe, "but everyone is busy with farm work at this season. We don't go visiting as much as you city folks."

Jack thought that the evening had scarcely begun when Uncle John stopped reading. Aunt Alice put away her sewing and everyone went to bed. "Early to bed and early to rise" is the rule on the farm. Joe took a small lamp from the shelf. By its light the two boys went upstairs. Jack had always lived in a city apartment. All the rooms in this apartment were on one floor.

"How queer," thought Jack, "to go upstairs to sleep. And how queer to carry lamps around the house." In the New York apartment there was an electric light in every room. To make a light one had only to turn a switch or push a button.

Jack looked out of the window. "All dark," he said, "dark as a pocket."

"Look up," said Joe. "How do you like our stars?"

"Great," said Jack. "There must be millions of them. In the city there is so much light from street lamps and from automobile lamps that you almost never see a star."

After Jack was in bed, he heard strange noises. "Cree, cree, cree," came through the open window. The crickets were singing in the grass and trees. They were saying "cree, cree, cree," as though they had nothing else to do but to talk all night. "Cree, cree, cree!"

"Oh, my," said Jack to himself. "It's a long long way from here to anywhere else."

THINGS TO THINK ABOUT

1. Joe's house was built of wood. What other kinds of houses have you seen?
2. What things did Jack eat in the country that you think would help to make him grow?
3. Boys and girls who want to grow big and strong need at least nine hours of sleep every night. What time did Jack and Joe go to bed? What time do you go to bed? Do you get nine hours of sleep each night?
4. If you have a sand table, perhaps you can make the Brown farm in the sand. If you do not have a regular sand table you may make one with two inches of sand in a shallow box. Perhaps you can lay off the Brown farm in the school yard, or on the schoolroom floor, or on the blackboard.

A herd of cows in a pasture. What will they do with the grass? Will they make any use of the trees?

EARLY MORNING ON THE DAIRY FARM

After you have read this story, tell how many people helped to get the milk ready for other people to use.

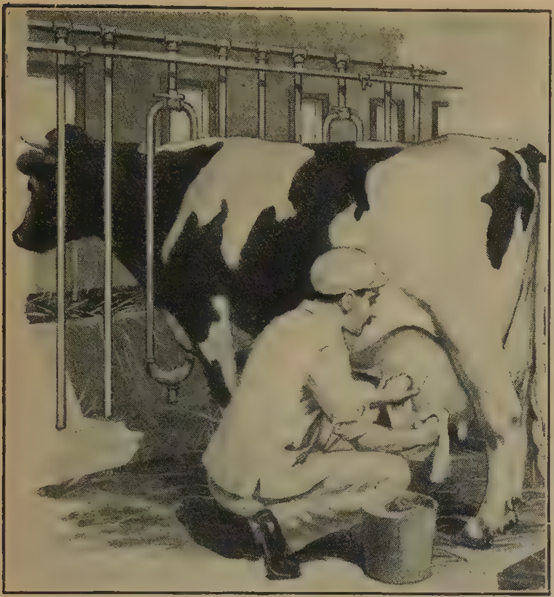
At half-past five o'clock the next morning Joe's father called to him to get up. Joe was sleepy. So was Jack. But Joe had to help milk the cows. Jack wanted to help him if he could. He also wanted to see everything that was going on.

The robins and the catbirds were singing as if they were having a party. They sing that way in the country every bright morning in early summer.

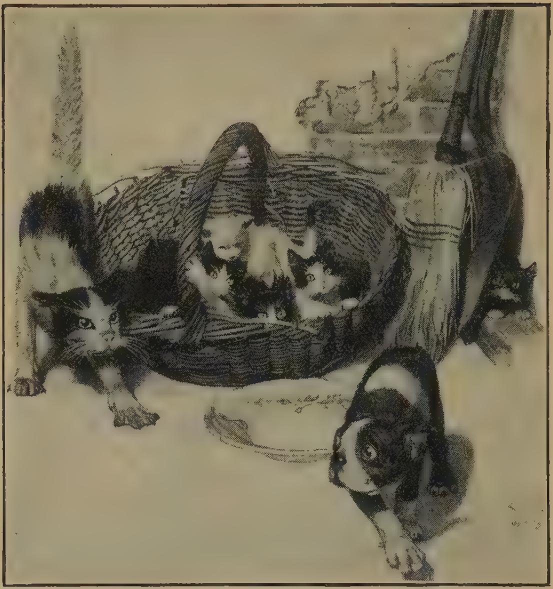
The boys went to the barn. This barn was built of wood and was painted red. It was larger than Mr. Brown's house. The barn was the home of many cows and horses. It was also the place where food for the animals was kept. Inside the barn the horses were eating their breakfast of corn and hay. Mr. Brown curried the horses while they ate. Horses like to have their coats combed and brushed by people who are kind to them.

There were sixteen cows on the farm. At night they stayed in a field with a fence around it. In the late afternoon and early evening they walked about and ate the grass that grew in the field. When they had eaten enough they lay down on the ground to sleep.

Sam, the hired man, had gone to the field to get the cows. He wore



Getting ready to milk. What is the man doing?



Tab invites the neighbor's pup to go home. Will he go?

his blue overalls and his broad-brimmed straw hat.

"Hey there, Spot! Go on, Brownie," he called, as he drove the cows toward the barn. They walked slowly, one after another, through the door into the barn. Each cow knew her own stall and walked into it. She began to lick up a little corn meal and bran that Sam had put in each trough to tempt the cows to come in promptly. While the cows were eating, Joe and Sam fastened them in their stalls so that they could not go away.

The milkers washed their hands very clean. They took buckets of water and cloths and washed the cows' udders, so that there would be no dirt to fall into the milk. Each man took a clean tin pail. He sat down on a stool beside a cow and began to milk into the pail. Sam milked six cows. Mr. Brown and Joe each milked five cows. Joe had been milking for three years. He could milk about as fast as anyone.

"Meow! Meow! Mew! Mew! Mew!" What was that? It was the rat and mouse police. There were six on this police force—Tab, the cat, and her five kittens. The kittens came running to get a pan of fresh warm milk. Tab could not come. She was locked in the feed room.

Mr. Brown liked to have many birds on his farm. Birds eat worms and grubs which feed on the farmers' crops. Very early on spring mornings the young birds are learning to fly. Then the cats catch them easily and eat them. One cat may eat fifteen or twenty birds in a year. That is why Mr. Brown kept Tab in the feed room for several weeks every spring.

All the rest of the year Tab was free. She had very important work

A large dairy barn and the herd of cows taking a sun bath.

to do in the barn. She caught mice. Every mother mouse has four or five babies every few weeks. Tab and her family caught the mice before they could eat much of the cows' meal and the horses' corn. Mr. Brown was very glad to give Tab and the kittens a pan of milk at milking time. He said that they earned their food.

One of the cows belonged to Joe. On his tenth birthday his father had given him a calf because he had been helping with the farm work. In three years the calf had grown to be a cow. She had a calf of her own. The calf was Blackie. Joe's cow gave twelve quarts of milk each day. Mr. Brown always weighed her milk so that he could tell how much of the milk belonged to Joe. Joe got the money for the milk from his cow. It is good for boys and girls to earn money. Do you earn money?

THINGS TO THINK ABOUT

1. Bring to school pictures that tell stories about cows and milk. Choose the best pictures. Cut them out and paste them on paper, so that the pictures tell the story of milk.
2. Does it make any difference to you whether or not grass grows?
3. Pretend that your four-year-old sister does not like to drink milk. What would you say to her to get her to drink milk every day?
4. Perhaps some dairyman will tell you how much milk his cows give each day.
5. Pretend that you are Jack. Tell how the milk was kept clean and pure on Uncle John's farm.
6. There were two mice in the barn on New Year's Day. Suppose they doubled in number every two months. How many mice would there be in a year?

COOLING AND SHIPPING MILK

As you read this story think of everything that farmers should do to keep milk clean.

As soon as Sam or Mr. Brown or Joe had filled a bucket with milk he poured the milk through a cloth strainer into a tin trough. Then it ran down over a cooler full of cold water. If milk is kept clean and is cooled quickly it keeps sweet longer. As this milk was to be sent to the city for babies to drink, Mr. Brown was careful to keep it very clean. Every day he or Sam scalded all the milk pails and milk cans with boiling water. He did not want to send dirty milk to town. It might make some baby sick. Mr. Brown was proud of his clean milk.

As soon as Joe emptied the last bucket of milk he went to the stable and brought out Roy, the old brown horse. He hitched Roy to the milk wagon.

As soon as the milk was cooled, Mr. Brown put the tin lids on the milk cans. Then he helped Sam to put the four ten-gallon cans into the wagon.

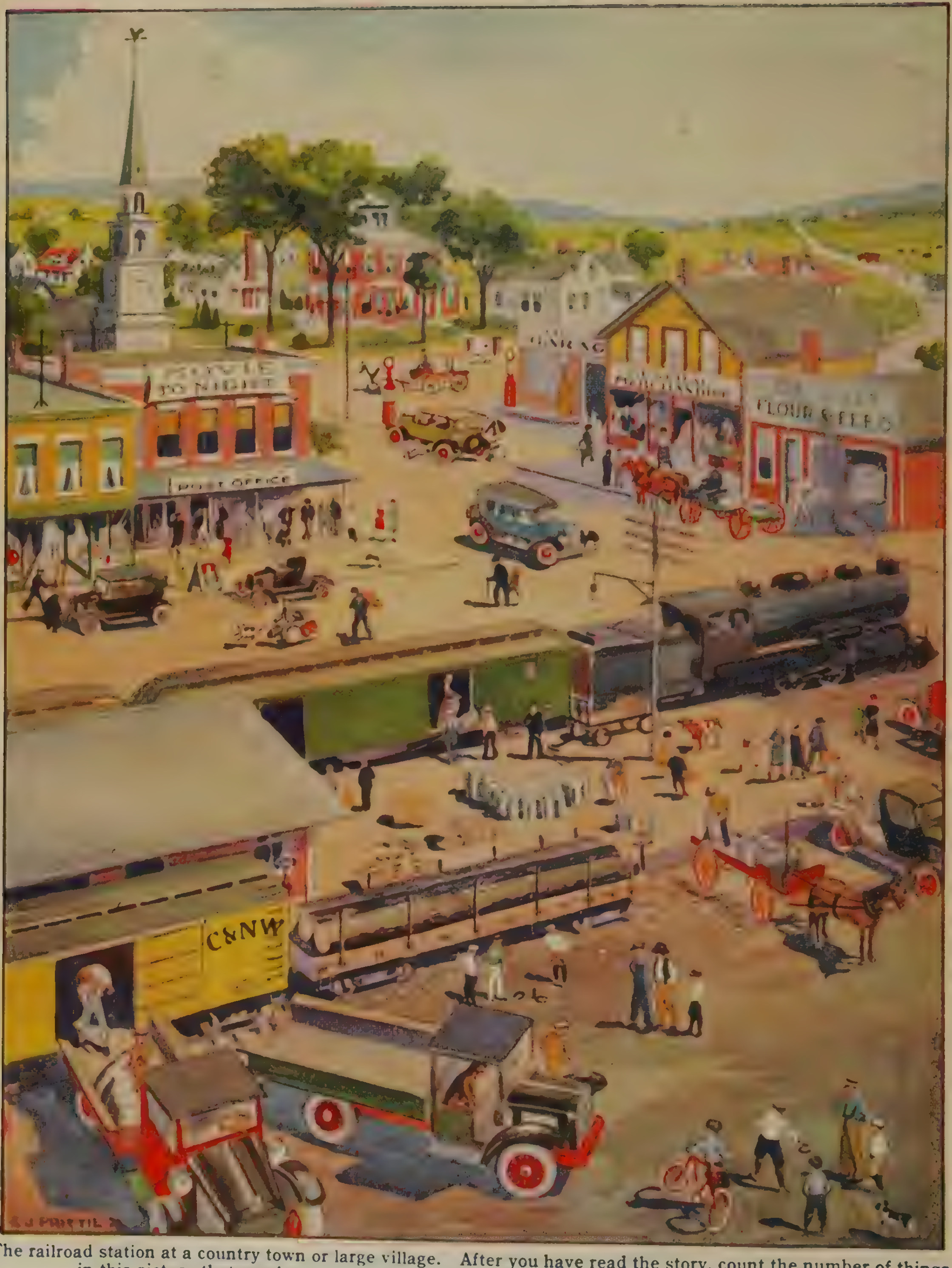
"Get up, Roy!" shouted Joe, as he slapped Roy across the back with the lines. Away went Roy and the boys to the railroad station.

A part of Joe's regular work was to put the milk on the 6:50 train for the city. Jack wished that his father and mother might get some of this milk. It had tasted so good at supper the evening before. The school doctor in New York had said, "Boys and girls should drink milk every day." Jack was underweight for his height. The doctor had told him to drink more milk.

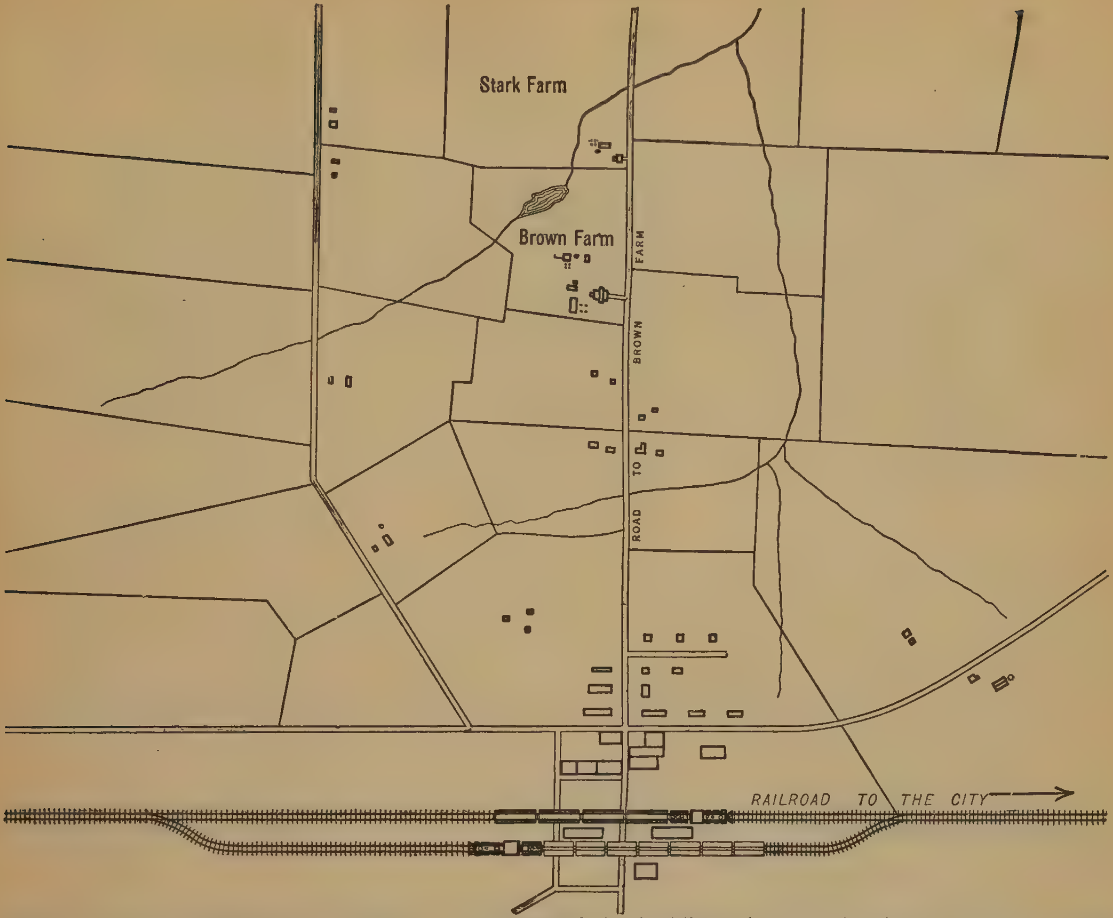
The hose carries cold water which runs through the tin cooler. See the little streams of milk as they run over the cooler on the way to the can beside the man. This makes warm milk cold in ten seconds.

There were twenty other milk wagons at the station, for many of Mr. Brown's neighbors were dairy farmers. These farmers got most of their money from the sale of milk or cream. Some of the wagons were driven by men. Two were driven by women. But most of them were driven by boys.

Sometimes the boys pitched horseshoes while they waited for the train. Jack had a lot of fun learning to pitch horseshoes. But Joe beat him every time. Joe knew how to pitch a


MOVIE TO NIGHT
POST OFFICE
FLOUR & FEED
C&NW

The railroad station at a country town or large village. After you have read the story, count the number of things in this picture that you know something about. Did you learn these things from the story?



Map of the farm neighborhood and village. How many of the buildings shown in the picture of the village can you find on this map?

horseshoe so that it would curl around the stake. The boys called this a "ringer." Indeed, Joe could pitch so well that he was the champion of all the boys who met the milk train.

When the train came, there was a great rattling of cans as the men and boys loaded them into the milk cars. Then everyone hurried home.

THINGS TO THINK ABOUT

1. What do these things tell you about the milk business?

a) Cows give milk every morning and every evening.

b) Joe must get up at half-past five every summer morning to milk the cows.

c) Milk must be cooled quickly and kept cool with ice.

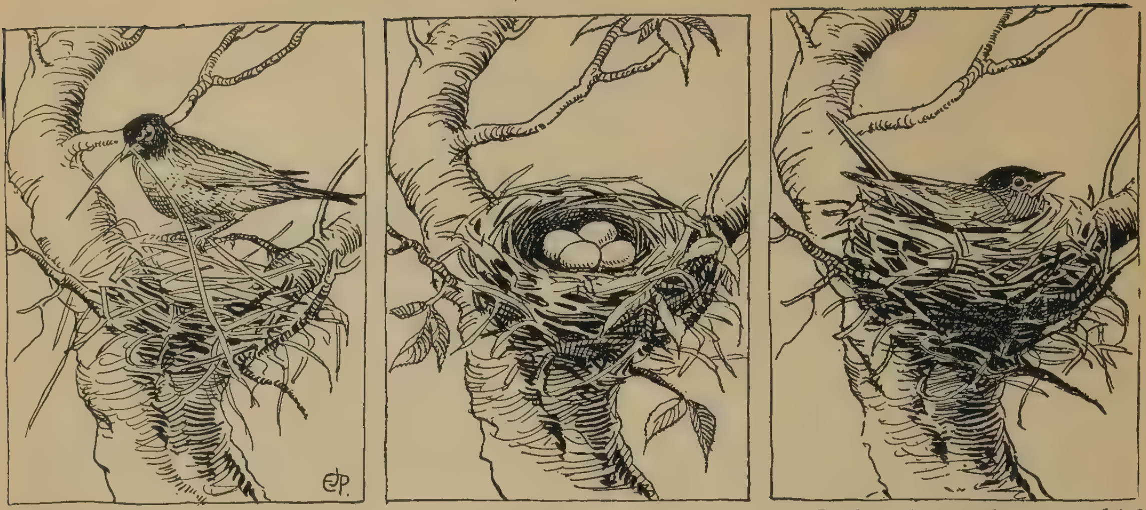
d) Mr. Brown had not taken a vacation for five years.

2. Babies must have fresh milk. Milk should not travel for more than a few hours. Can you tell why there are so many dairy farms near large cities?

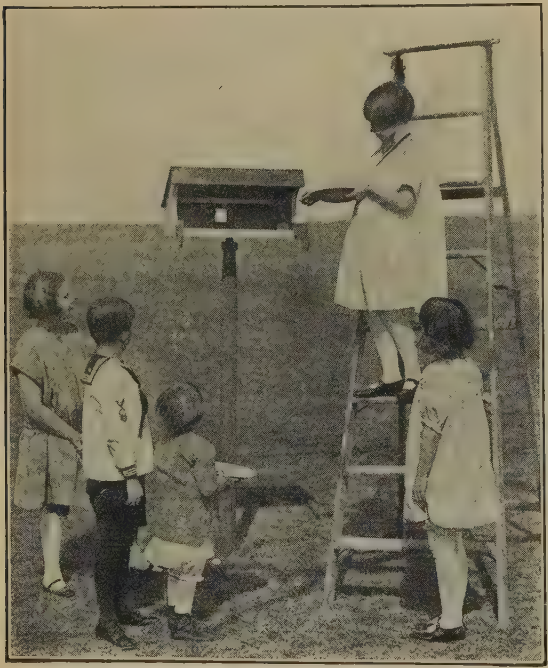
3. If there happens to be a dairy farm or a milk-bottling plant in your neighborhood, perhaps your teacher will take you to visit it.

4. Let a milk can tell the story of its journey from the farm.

5. You may like to act the story of milk. Let several groups try it to see which group can do it the best.



Look at the six pictures and tell



Bird shelter and plates of food for the birds.

THE ROBIN AND HER JOB

After you have read this story tell some things that little birds can do better than we can.

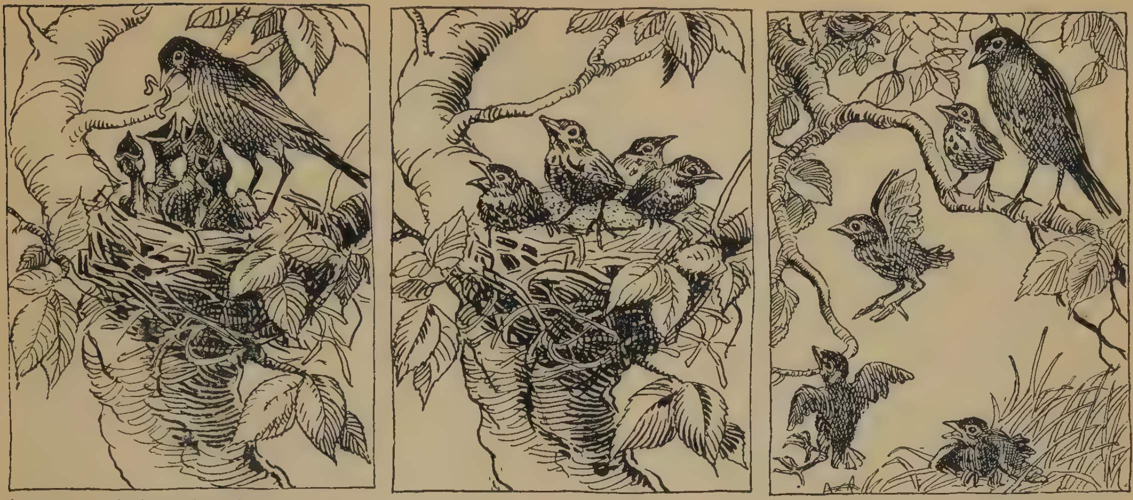
After breakfast Jack stepped out into the back yard. The first thing that he saw was a robin hopping along a row of bean vines in the garden. She seemed to be looking for something. She turned her head first one way and then another, as she hopped along. Then she darted her head into a bean vine. She came out with a worm in her beak.

She flew up, lit in a bush near Jack, and began to scold him.

"Perk, perk, perk," she scolded. This meant, "Go away, Jack, go away."

Jack stood perfectly still. Soon the robin saw that the boy would not hurt her. She flew across to the top of the grape arbor near the kitchen door. There on the top of a post under some big green leaves was her nest.

When she lit beside the nest, four little heads were stuck up above the edge. Each had a wide-open mouth and made little squealing, squeaking noises. The young birds were asking for food. The robin dropped the worm from her bill into the wide-open mouth of one of her youngsters.



the story of the robin family.

Then she flew away to the garden again.

All day long Mr. and Mrs. Robin brought worms, worms, worms, worms. How those young birds did eat! And how they did grow! In three weeks they had feathers and were big enough and strong enough to fly away and find their own food.

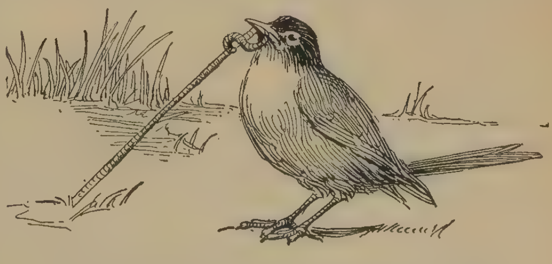
The robins caught many worms that would have eaten Mr. Brown's crops. Some worms lay hundreds of eggs. When each egg hatches, there is another little worm in the garden. Worms must eat as they grow. They like the tender leaves and the buds of plants and vegetables. Other birds on Mr. Brown's farm ate the worms' eggs before they hatched. Mr. Brown knew this. He was glad to have the help of the birds in his garden and his fields. He was also glad to have the help of Tab and her kittens in the barn.

Over the radio one evening Jack, Joe, and Mr. Brown listened to a wonderful story about birds.

"Insects," the radio speaker said, "would eat every green thing in the world in three years if they were not held in check by the birds."

THINGS TO THINK ABOUT

1. Bring a book about birds to the class. Find pictures of the birds that you have seen in your neighborhood.
2. Make a list of the birds that you know. Opposite the name of each bird write what it eats. Compare lists to see how many birds the class knows.
3. Which of the birds do you think are the best friends of the farmer?
4. If you have phonograph records of bird calls, play the records and try to learn the calls.
5. Why was it wise for Mr. Brown to lock Tab in the feed room each spring?
6. Did you ever see a plant or a tree from which the worms had eaten the leaves?



Mrs. Robin pulls a worm out of the ground.

What do you think the girl has in the bucket?

THE CHICKENS, THE EGGS, AND THE HUCKSTER

Did you ever hear that part of Mother Goose which tells about Humpty Dumpty? This story tells you some other things that are done by the one who made Humpty Dumpty.

As Mrs. Robin flew away for another worm Mary Brown opened the kitchen door and came out to feed the chickens. Mary was a pretty girl with brown eyes and bobbed hair. She wore a blue apron that reached from her shoulders to the bottom of her dress. She carried a pan full of chick feed for the young chickens. Mary and her mother took care of the chickens. They divided the money they got when they sold eggs and chickens.

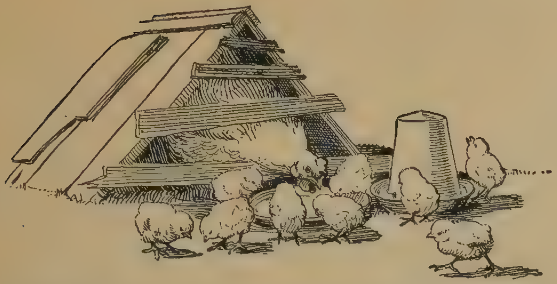
Near the hen house were four *coops*. In each was a mother hen and her family of little chicks. As Mary came near, heads were stuck out of each coop.

"Cluck, cluck, cluck, cluck," called the mother hens to their children. "Breakfast is coming."

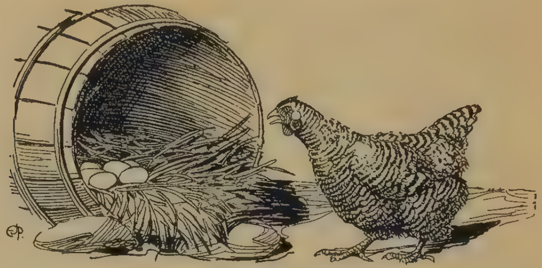
Mary opened the doors of the coops. Out stepped the hens and their families. Mary put a handful of feed before each coop. The hens gobbled the food, talking all the while to the little chicks.

"Cluck, cluck. This is our breakfast," said the mother hen. "Cluck, cluck, cluck, cluck. This is the way we eat our breakfast." Then each hen walked off across the grass in a different direction, clucking to her children.

"Peep, peep, peep," said the little chicks as they ran after their mothers.



"Cluck, cluck, cluck," says the hen if she sees danger coming, or wants to call her chicks.



This is the kind of place a hen likes for her nest.

Mary opened the door of the hen house. Out came thirty-five more hens and fifty half-grown chickens. These older chickens slept in the hen house all night. They were safe from harm in the hen house.

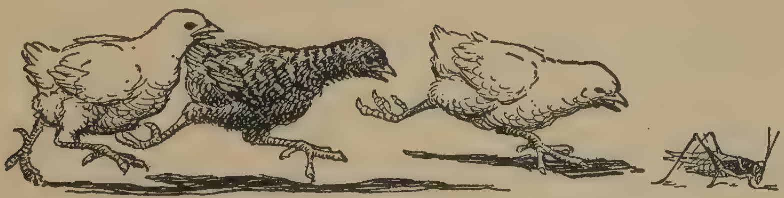
The half-grown chickens had been hatched in April. They were now big enough to look out for themselves. They did not follow their mothers any more. Mary emptied a pan of chick feed into a feeding coop for these young chickens. How they did hurry to squeeze through the slats in the coop to eat the feed!

Soon the young chickens in the feeding coop had finished eating the chick feed. Then they started off in all directions to hunt food for themselves. Some ate grass in the yard. Some lazy chickens stayed near the kitchen door. They thought Mrs. Brown might throw out bits of food. Some went to the barn and scratched over the straw in the horse stable to find kernels of grain that the horses had dropped. Horses are not careful eaters. Some went to the pasture field to hunt for grasshoppers. Chickens do love grasshoppers.

Four young chickens went over to the corn field. Sam was cultivating the corn. The sharp teeth of the cultivator turned over the soft brown earth between the rows of corn. This uprooted the little weeds in the corn field. Corn and weeds must not grow in a field at the same time.

Once in a while a worm was seen as the earth turned over behind the cultivator. Then the four chickens would jump for the worm. The one that got it ran away very fast. She did not want the others to catch her and take the worm away from her before she had time to eat it.

"Now I see what these chickens do," said Jack. "They eat worms,



Chickens do love to eat grasshoppers and most kinds of bugs.

A prize-winning leghorn hen. This hen laid 324 eggs in one year.

grass, and stray grains of corn. They eat the grain which you give them. They turn all this food into chickens."

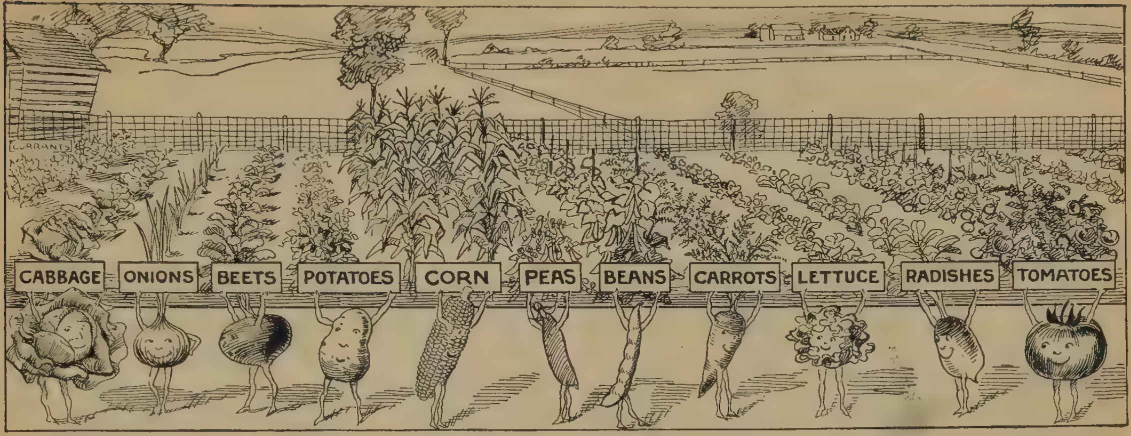
"That's right," said Mary, "but don't forget the eggs. They also turn what they eat into eggs. Come and help me hunt the eggs. I did not have time to gather them last evening because we went to the station to meet you."

Jack and little Ned went with Mary to hunt the eggs. They found fifteen eggs in the nests in the hen house, two in the woodshed, and three in some nests in the barn. As they were about to leave the barn Jack happened to look into an empty barrel that lay on its side. There was a new nest! Mary had not seen it before. Seven eggs were in the nest. Mary was very glad to put the eggs into her basket.

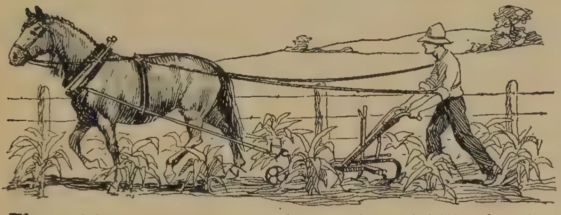
While Mary was counting the eggs at the kitchen door, the huckster came to buy eggs. This huckster went about the country buying eggs and chickens from the farmers. He sent the eggs and chickens to a big city. Mary and her mother had saved twelve dozen eggs since he last visited them. The huckster paid for the eggs. He put them in his truck. Then he went on to the next farm to buy more eggs. Soon he had a truckload of eggs and chickens to send to the city.

THINGS TO THINK ABOUT

1. Tell how Mary and Joe earned spending money. How do you earn spending money?
2. Joe tended his calf for three years, until she was old enough to give milk. Why did Joe need to be a careful boy?
3. Suppose Mary forgot to give her chickens food and water. What would happen to her spending money?
4. Pretend you are a little chick. Tell the story of your life. What do you like to eat? How do you play? Why does the farmer keep you?
5. If there is a man in your neighborhood who has many chickens, ask him where he sells his eggs and poultry. Ask him where he gets food for the chickens.
6. Ask your mother to tell you all the things for which she uses eggs. Maybe your teacher will let you make a list of the things on the blackboard.
7. Write a few sentences that will answer the question: "Why I keep chickens" or "Why I should like to keep chickens."
8. Each of you should have a notebook and keep a list of all the things that the children in the story do. When the book is finished you can count the number of things and talk about them.



The artist sees the garden vegetables as people.



The cultivator turns over the earth and kills the tiny weeds just as they are sprouting.

THE VEGETABLE GARDEN AND THE HEN THAT STOLE HER NEST

This story will tell about some of the things which happen on farms.

As the huckster drove away Mr. Brown came out of the stable leading Roy, the horse, by the bridle. Roy had a harness on. It was not the harness he had worn when he went to the station with the milk wagon. Mr. Brown led Roy into the garden and hooked the harness to a cultivator.

"Get up, Roy," he said in quiet tones. Mr. Brown held the handles of the cultivator. Roy pulled it up and down the garden between the rows of plants.

Roy was a good plow horse. He seemed to know that he should not step on the plants. When Mr. Brown said, "Gee, Roy! Gee!" the good old horse turned to the right a little.

"Haw, Roy! Haw!" said Mr. Brown, and Roy turned a little to the left as he stepped quietly along.

The steel points of the plow went once on each side of every row of vegetables. They uprooted most of the little weeds. Weeds die when their roots are pulled out of the earth. There were some weeds between the plants. The plow could not get at them. These Mr. Brown and Joe took out with hoes.

"I want a hoe," said Jack. Joe was very glad to get one for him. Jack's help meant less work for Joe. This was the first hoe that Jack had ever handled. He soon learned to use it. Uncle John and the two boys chopped out most of the weeds with the hoes. Some of the little weeds in the rows close to the plants had to be pulled up by hand.

Soon the sun began to get hot in the garden. The sweat rolled down Jack's face.

A little bit of good ground makes much good food if it gets good care. Are there any weeds in this garden?

"What a busy place," thought Jack. "How much easier it is to buy vegetables at Mr. Kolb's store!" That was the way his mother did in New York. Then he remembered how much money his mother had to pay for vegetables in the city. Here were whole rows of peas, beans, beets, carrots, tomatoes, corn, cabbages, potatoes, lettuce, radishes, and onions. These would cost a great many dollars at Mr. Kolb's store, thought Jack. At dinner he noticed how much sweeter the beans tasted when they were fresh from the garden. Nearly all vegetables taste much better if they are eaten soon after they have been picked.

While Mr. Brown and the boys hoed and pulled weeds, Mrs. Brown and Mary picked currants. They wanted to use the currants for making jelly. The currant bushes were at one side of the garden.

"Mother, mother," cried Mary, as she came to the third currant bush. "Here is old Speckle! Do come and look." They had not seen Speckle for weeks.

Joe and Jack scampered across the garden to see.

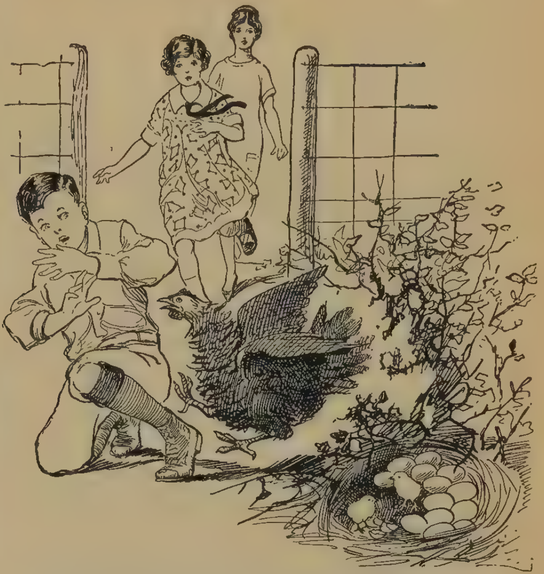
There under the bush sat Speckle, the long-lost hen. From under her wings two tiny chicken heads peeped out.

Jack wanted to hold a little chicken in his hand. He started to reach under Speckle to get one. Speckle spread her feathers to make herself look very big. Then, quick as a flash, she sprang at him, hit him with her wings, and pecked his hand with her bill. She pecked so hard that she almost made the blood come. That is the way mother hens protect their babies.

Speckle wanted to be let alone. Five weeks ago she had stolen quietly into the garden. There under the currant bush she made a nest and laid an egg. When there were fourteen brown eggs in the nest, Speckle spent nearly all of her time sitting on them to keep them warm. Speckle sat on the eggs for twenty-one days. It takes that long for hen's eggs to hatch when they are kept warm.

Mary left Speckle on the nest. The next morning the little chicks were all out of their shells. Speckle walked

A lesson in gardening.



Jack found out that hens protect their babies from strangers.

proudly down to the garden gate with eleven little chickens following her. She clucked loudly. This meant, "Mary, come see. Mary come feed us." Mary gave Speckle and her children a coop to live in and a good breakfast to eat.

Many hens like to lay their eggs in secret places. But Mary was a good hunter. She knew where the nests of all her hens were except Speckle's nest.

"Now," she thought happily, "I can still say when folks ask me, 'I have forty hens.'"

THINGS TO THINK ABOUT

1. Where are the vegetables which you eat grown?

2. Pretend you are going to make a garden. Get a seed catalogue. From the pictures choose the things you would like to plant. How would you prepare the ground? How would you plant the seeds? Try to make your garden a better garden than Mr. Brown's.

3. If you are reading this story in winter, plant some radish seeds in a box of earth near a window. Water the seeds. Soon the little plants will come through the earth.

4. Why did Joe and Jack work hard to keep the garden free from weeds?

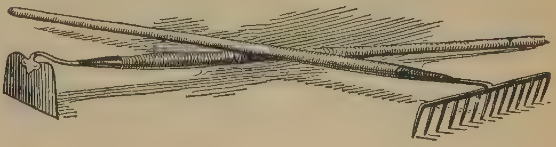
5. Why should every family that has a piece of ground plant a vegetable garden?

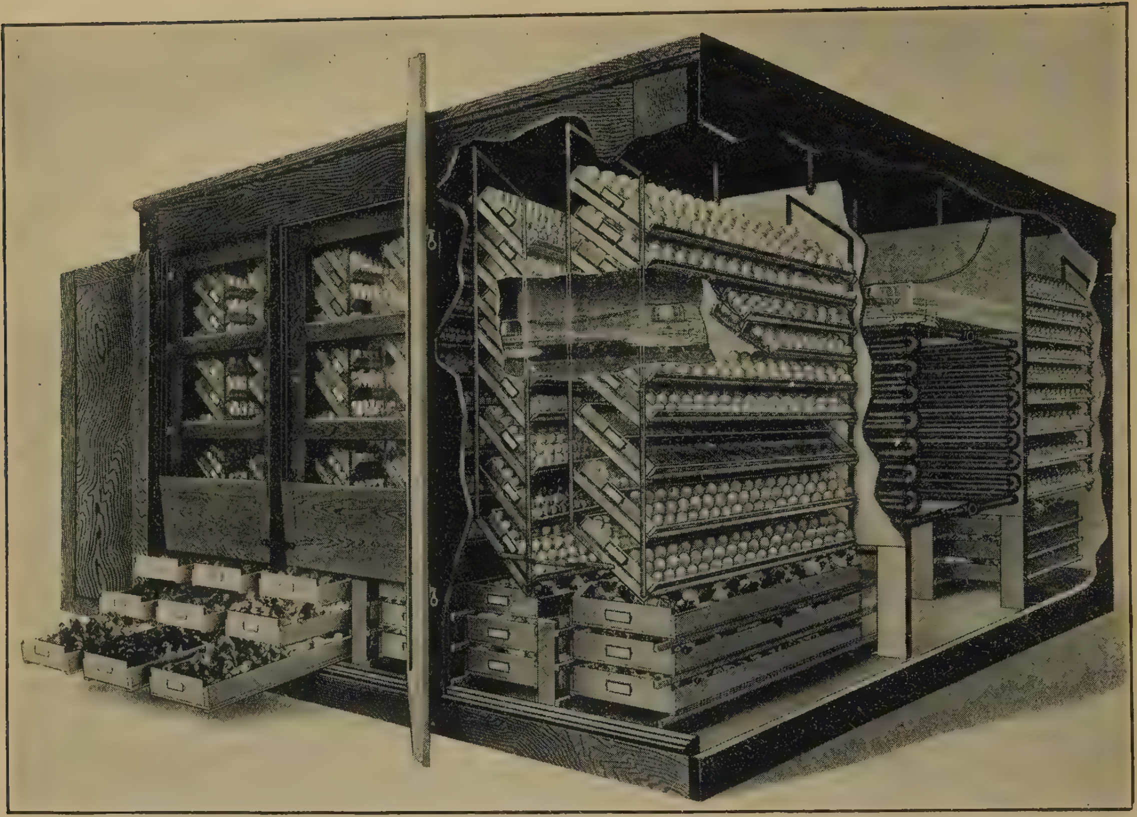
6. Jack's doctor in New York told him to eat plenty of fruit and vegetables, especially vegetables that give us green leaves to eat. Try to find out why. Ask your mother if she knows. Perhaps a doctor or a teacher or a nurse will tell you.

7. Make a list of the kinds of vegetables and fruits that you eat. Write their names in columns like these.

VEGETABLES AND FRUITS THAT I EAT

Kinds that are Roots of Plants	Kinds that are Stalks of Plants	Kinds that are Leaves of Plants	Kinds that are Seeds of Plants





A big incubator which hatches many hundred chickens at one time. The pipes carry hot water.

HATCHING CHICKENS IN AN INCUBATOR

After you have read this story tell how men are now doing a part of the hen's work.

As Jack hoed he thought about Speckle, the hen. She had raised a flock of chickens for the Browns. That seemed to Jack like a new way of making money. Then he remembered the huckster's truck which he had seen the evening before with hundreds of dozens of eggs in it.

Soon the dinner bell rang. They all went to the house. Jack asked Mary if she knew how many eggs she had sold this year.

"I will get my book and find out," she said.

Mary went to the desk, took out a little account book, and read, "January 6, 2 dozen; January 13, 2½ dozen. Hens, you see, don't lay many eggs in cold weather, but then we get a high price for them. They lay much better in April. Then the weather is getting warmer. The hens can scratch in the ground, eat grass, and hunt things for themselves. Listen to this: April 22, 15 dozen; April 29, 16½ dozen. All together we have sold 164 dozens of eggs in six months."

Just then there came a knock at the door. It was Mr. Simpson, a neighboring farmer. He had come to borrow Mr. Brown's mowing machine

White leghorn chickens on a poultry farm near the Pacific Ocean.

to use while his mower was being mended.

"You may use it," said Mr. Brown, "but first sit down and have some dinner."

"Please do," said Mrs. Brown. "I have boiled a whole ham, and we have plenty of cabbage and potatoes and pie."

"Thank you, I will," said Mr. Simpson, as Mary put a plate on the table for him.

When everyone was served, Mrs. Brown asked Mr. Simpson about his trip to the Pacific coast.

"The most interesting thing I saw out there," said Mr. Simpson, "was a hen town. Nearly everybody near that town keeps hens; lots of them, hundreds of them. Some men have thousands of hens. All around that town are chicken farms. The eggs which the hens lay are sent all the way across our big country to New York. They are shipped the day after they are laid. They get to market nice and fresh. And would you believe it, Mary, there is not a setting hen in the whole neighborhood. All the eggs are hatched in incubators."

"What is an incubator?" said Jack.

"An incubator is a machine that holds eggs and keeps them warm until they hatch. Mary's hens sit on the nest and keep the eggs warm

A hen house for many hens. They sleep on the perches at the left. Nests for laying hens at the right. Some hens are standing by feed boxes at the right. The hens get exercise by scratching in the straw for grains of wheat and corn.

with their bodies. Incubators are kept warm by small stoves. The stoves burn coal, or oil, or gas. Some incubators are heated by electricity."

"I should like to see an incubator," said Jack.

"You surely would," said Mr. Simpson. "One of those incubators holds more eggs than Mary has sold this year.

"I visited a poultry farm. The man who owned it kept nothing but chickens—hundreds and hundreds of them. Soon after I got there he was ready to turn the eggs in the incubators. When hens sit on eggs to hatch them they turn the eggs with their bills every day. When people put eggs in incubators to hatch they do as the hen does, as nearly as they can. The incubator man turned the eggs every day.

"He showed me the heat regulator that kept the incubator just warm enough for the eggs to hatch. One day something went wrong with the regulator. The incubator got too hot. All the little chickens in the eggs were killed. There were three thousands eggs in the incubator. Not one egg hatched."

"Oh," said Mary, "I'm so glad the little chicks did not know about it."

"Mary," said Mr. Simpson, "I wish you had seen that man's daughter Jane. She was just about your age."

"Does she like chickens?" asked Mary.

"Indeed she does. She showed me an incubator in which the eggs were hatching. Jane pulled out a drawer as big as a bureau drawer. In it were lots of eggs, lots of empty egg shells, and lots of little yellow chicks. 'Peep, peep, peep,' said the little chicks as they looked up and saw people for the first time in their lives.

"'Look,' said Jane, pointing to an egg that was broken at the middle. There was a hole about an inch long across the middle of the egg. A baby chick's bill was sticking out of the hole. In a moment the little yellow bill drew back into the shell. It went under the shell. Then it pushed out again, breaking the shell a little more and making the hole a little larger.

"I watched that little fellow for a long time. The chicken would break a tiny bit of the shell. Then it would rest a while. Then it would turn in its shell a tiny bit. Then it would draw its bill in under the shell. Then, crack! it would break another little piece of shell.

Hatching day. A lamp heats the small incubator.

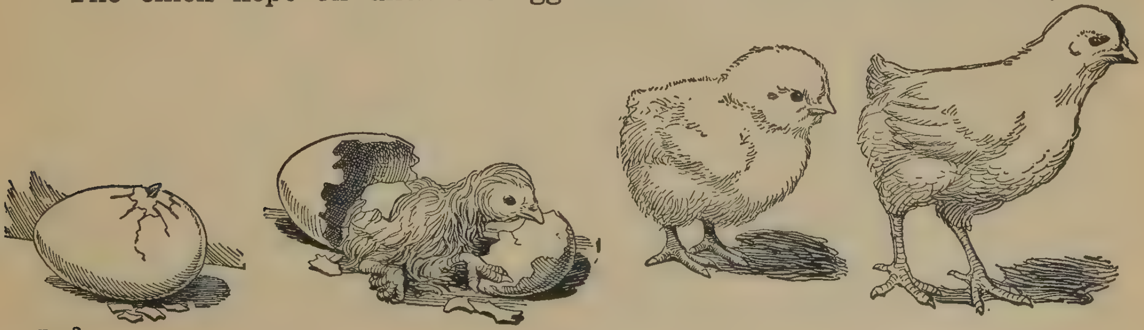
"The chick kept on until the egg was broken more than halfway round. Then all at once it stretched a little harder than before and the shell broke in two. Out came the chick's head. 'Peep, peep,' it said.

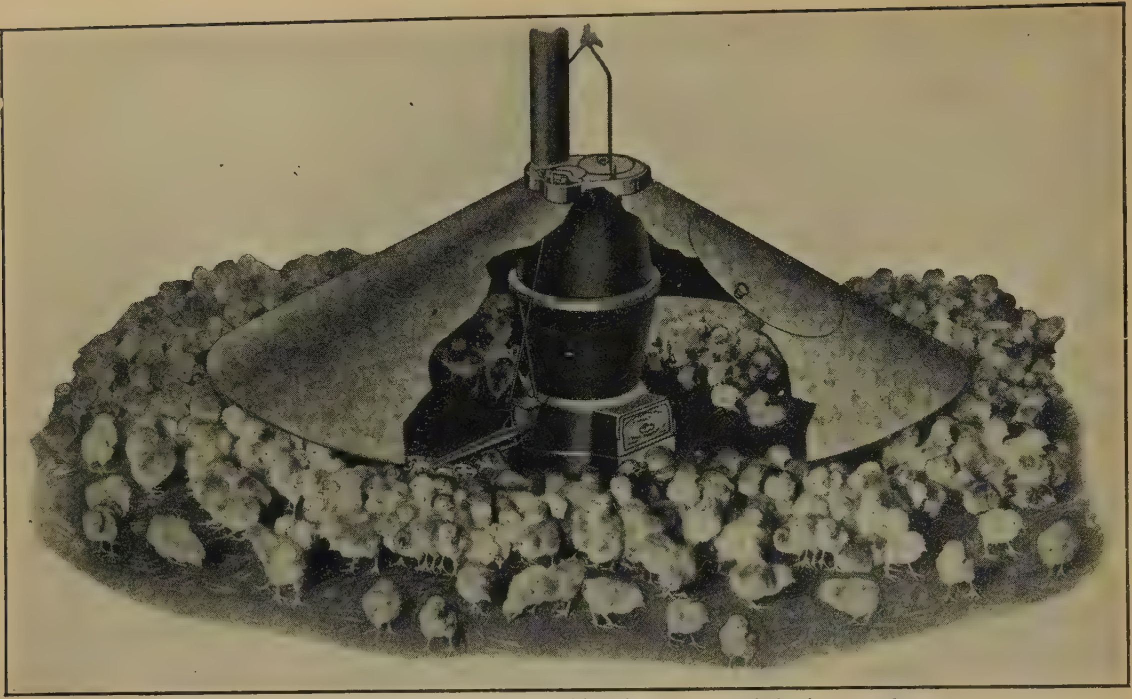
"'Please don't touch it,' said Jane. 'Don't help it out. That would hurt it. We must let it get out of the shell in its own way.'"

"I want to see that Pacific coast chicken farm some day," said Mary.

THINGS TO THINK ABOUT

1. Can you tell what things men have learned from hens?
2. Would we be richer or poorer if men had never learned how to tame wild chickens and keep them on the farm?
3. If you were going to raise chickens would you rather raise them as Mary does or as Jane's father does? Why?





Read about the brooder and tell why this might be called the iron mother.

RAISING CHICKENS BY BROODER

After you have read this story tell in what way the brooder is like a mother hen.

"Before you go, Mr. Simpson, please tell me who took care of the baby chicks after they were hatched," said Mary.

Mr. Simpson laughed. "Well, that is just what I asked Jane. She took me across the yard to a little house. 'This,' she said, 'we call the brooder house. We must be very quiet. If the chickens hear us they will all jump up and come running to us.'

"Quietly we tiptoed up to the door of the little house. We peeped through a small hole in the door. There was a little stove in the center of the room. It had a fire in it. There was a kind of tin umbrella over the stove to keep the heat down near the floor. That kept the floor warm. There on the warm floor were little chickens—many little chickens. They had been hatched the week before.

"These brooder chickens had never seen a mother hen in all their lives. They had been hatched in an incubator and then put into the brooder house. When they felt cool they crept up close to the stove and lay down on the warm boards. This kept them as warm as Mary's chickens were under old Speckle's warm wings. If the brooder house chickens got too warm, they moved a little farther away from the stove.

"After I had had a good look through the hole in the door, Jane opened the door. Every chicken in the room jumped up and ran to her. They thought she was their mother. They climbed over her feet. She had to be very careful not to step on them. They looked up at her and peeped loudly. They were telling her she must do something and must do it right away.

"Jane dropped a few handfuls of feed on the floor. The peeping stopped. Every little chicken was gobbling food as fast as it could. They had no time to talk.

"The baby chicks were kept in the house by the fire until they got their first coats of feathers. Then Jane showed me the older chickens. They had enough feathers to keep their bodies warm. These older chickens had a yard in which to run and play on clear days. They also had a dry, cozy chicken coop for rainy days. Each night at sunset they went to bed by themselves in the coop.

"As we were leaving the brooder we met Jane's father. 'You see, Mr. Simpson, our farm is a lazy-hen farm,' said he. 'At your farm I suppose the hens lay eggs, sit on them, and take care of the baby chicks. Our hens do not hatch their eggs or take care of their children. They have nothing to do but lay eggs. They certainly do lay plenty of eggs. We sell thousands and thousands of eggs. We also sell a great many chickens.'"

"Did the man raise all the food his chickens ate?" asked Mary.

"Not a bit of it," replied Mr. Simpson. "He bought it all. He brought loads and loads of feed from town in his truck."

The little girl pets the chickens a moment before they go from the incubator to the brooder. What do you think a little chicken feels like in one's hand?

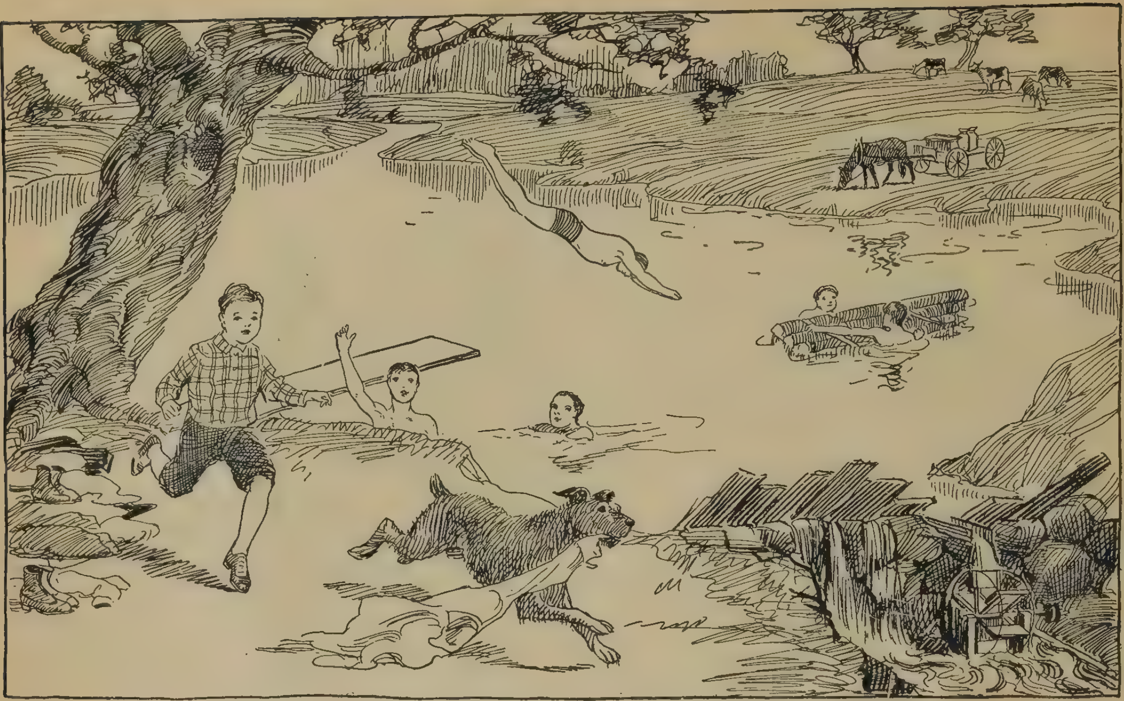
Mr. Simpson looked at his watch. "I have stayed too long," he said. "I've had a very pleasant time. I must take that mowing machine and hustle. My hay needs to be cut."

THINGS TO THINK ABOUT

1. Tell what the cow does to help you and me. Tell what the hen does to help you and me.

2. Mary kept an account book for her chickens. Do you think that Jane's father kept one for his hen farm? Could you have a book and keep a record of the money you receive and spend?

CORN
WHEAT
CHICK FEED



Read the story and tell what this picture shows. How many things can you name?

THE PASTURE AND THE AFTERNOON MILKING

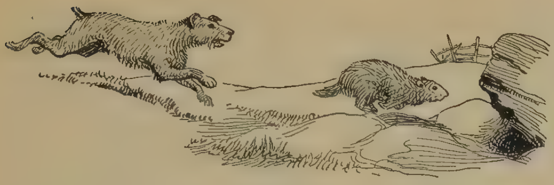
As you read this story see if you can tell how many kinds of play and work it tells about.

After dinner the Stark boys, who lived on the next farm, came over to Browns' for a swim. In Mr. Brown's pasture field was a stream. A dam had been built across it. The dam made the water deep enough for swimming. As this pond was the only one in the neighborhood, many boys came in the summer to swim with Joe.

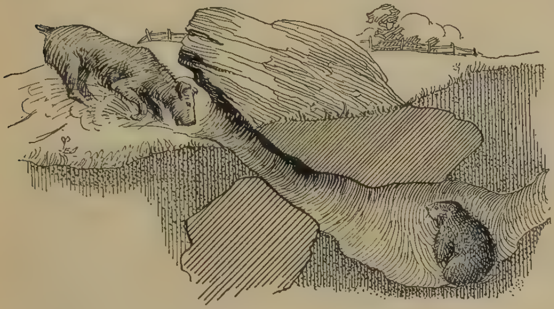
With the Stark boys was their brother Frank. He was six years old. He could not swim. He was so much afraid of the water that he would not go into it above his knees. He played in the shallow water near the bank. The bigger boys kept telling him that he ought to try to swim. Jack could swim much better than Joe. He had taken swimming lessons the summer before in the swimming pool of a boy's club in New York.

After much coaxing Jack got Frank into the water up to his shoulders. Then he taught him to swim. In a few days Frank would run and jump in with a big splash.

Near the pond some of the cows were eating grass. Others were lying in the shade under the big walnut and hickory trees. Some were in the far pasture. Evening milking time came at half-past four. Joe's job was to have the cows at the barn by that time. At four o'clock the boys called Nipper, Joe's black dog,



The woodchuck or ground hog is very watchful to see that no stranger gets between him and his house.



Why did the woodchuck put the door to his house between two stones?

and went out to the far pasture to get the cows.

Cows should be treated kindly and allowed to walk slowly. Some boys chase cows and make them run. Joe's father said that he got the most milk from his cows when Joe brought them from the pasture field. Joe felt very important to know that his father trusted him.

"What's that?" cried Jack, as he saw a thick-bodied gray animal, larger than a cat, go jumping along with queer little jumps.

"That is only a woodchuck," said Joe. "Some people call it a ground hog."

Just then the woodchuck dived into a hole under a big rock. Two seconds later Nipper came running to the hole barking and panting. Nipper wanted that woodchuck right away. He began to dig. He worked very hard. He barked. He whined. He bit the dirt. He smelled the hole. He dug and dug and dug. When the boys came back with the cows Nipper was still digging. He scratched up dirt with his front feet and threw it out behind him. The boys went on with the cows, leaving Nipper still digging.

After supper the boys went out to see what had become of Nipper. He was still digging and barking and whining. He was very hot and tired. His tongue hung out. His nose was muddy. His feet were sore. But the woodchuck's hole went down in the ground through a little narrow place between two big stones where Nipper could not dig. Poor Nipper had to go back home without any woodchuck. A woodchuck always stays close to his hole. He never lets anybody or anything get between him and his hole if he can possibly help it.

When Joe began to milk that evening he made a loud musical sound as he squirted the streams of milk against the inside of the pail. Jack wanted to milk a cow. Uncle John and Sam said that he could try to milk the cow named Spot. They called her Spot because she had white spots on her big black sides. She gave only a little milk. She was a good cow for a beginner.

Jack washed his hands and got a stool and a bucket. His uncle told him that he must speak pleasantly to the cow and pat her a little. Then she would want to let him have her milk.

Milking the cows.

"When you start milking," said Uncle John, "you must keep on milking. At first your hands and arms will get very tired. Keep on. Don't stop until you can get no more milk."

"Milking is easy," thought Jack as he watched Joe. "I can do anything the other boys do in our school gymnasium, and I can milk a cow." But it was so hard to squeeze the milk out and keep on doing it. His arms ached just below the elbow. He thought they would drop off. But he gritted his teeth and kept on. He was ashamed to stop. He did not want Uncle John and Sam and Joe to think that city boys do not have pluck.

At last he could not get another drop. Sam said that he had done well for a beginner. Jack did not know that you have to practice milking a cow, as well as nearly everything else, a long time before you learn to do it well.

THINGS TO THINK ABOUT

1. Give two good reasons why everyone should be able to swim.

2. Are there things that a country boy can do well which a city boy cannot do so well? Can the city boy do some things better than the country boy?

3. Nipper kept on digging at the woodchuck's hole. Jack kept on milking. How were they alike? Would you have liked them if they had not tried to finish their jobs?

4. Choose a boy to be Uncle John. Choose another boy to be Jack. Let Uncle John tell Jack how to bring the cows from the pasture to the barn and how to milk.

Sunrise the next morning.

Branches of a cherry tree. At what time of the year were these pictures taken?

PICKING AND CANNING CHERRIES

This story tells one of the many ways by which the farm family gets ready for winter long before winter comes.

"Cherries are ripe! Cherries are ripe," sang Mary. "Look at this," and she showed her mother a handful of bright red cherries.

"They have been *almost* ripe for a week," said Jack with a sly grin.

"It's a wonder you haven't been sick, eating cherries before they are ripe," scolded Mary. "I hope you can climb a tree, even if you are a city boy. We need all the help we can get to pick the cherries."

"What will you do with so many?" asked Jack.

"Wait and you shall see."

It had rained the night before. The ground was too wet for plowing corn, so Mr. Brown and Sam picked cherries.

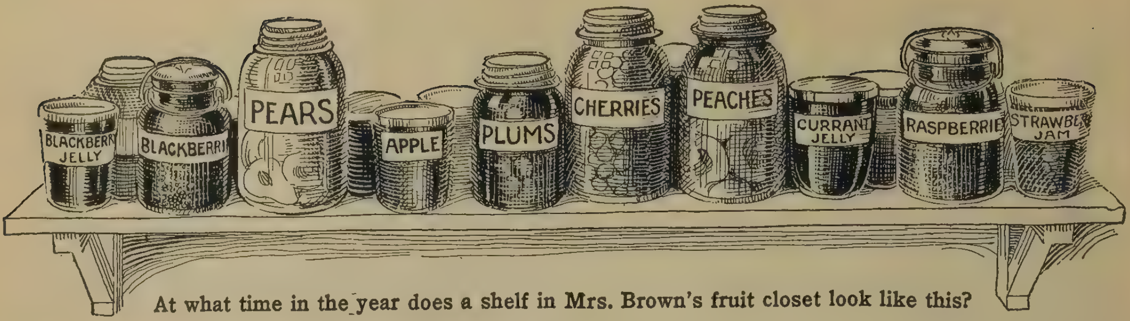
"I surely am glad that I planted several cherry trees in this pasture," said Mr. Brown. "The cows like to lie in the shade when the sun is hot. The trees bear fruit as well as leaves. I like to get all I can from a tree."

Jack was surprised to see how well Ned could climb. He was too young to milk. He had not gone very far in his lessons at school. But he could climb a cherry tree and he could pick cherries.

Several robins flew out of the trees when Ned scrambled up. They had been eating the cherries. Robins like cherries as well as they like worms. Soon the birds came flying back to the trees. They ate cherries even while the pickers were at work.

Jack liked to pick cherries. It was cool and shady among the branches. He could eat all the cherries he wanted. When he had picked a bucket full he liked to let it down with a rope. He liked to feel the swaying of the branches as he climbed out near the ends. Once he swung down until he almost touched Spot. She was standing in the shade under the tree.

By noon the six pickers had ninety



At what time in the year does a shelf in Mrs. Brown's fruit closet look like this?

What do you think this girl is doing?

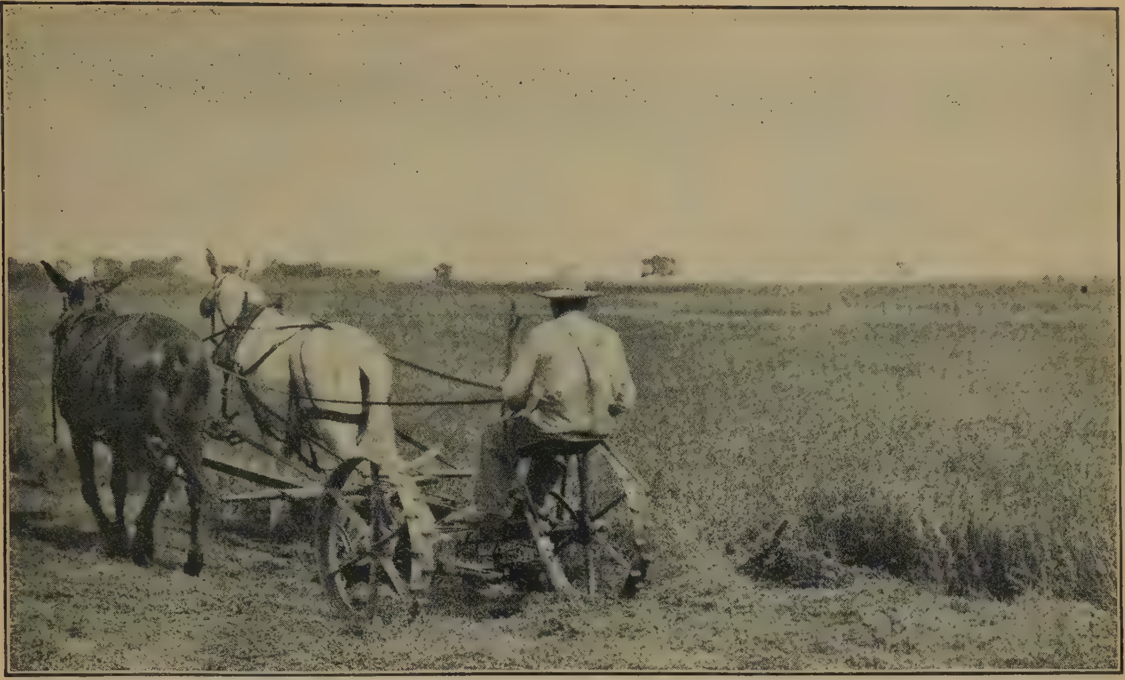
quarts of cherries. Mr. Brown sold several dollars' worth to people who lived in the village. The shade trees in the village did not bear cherries.

The rest of the cherries were taken to the kitchen. After dinner, Mary, Joe, and Jack picked them over. They sorted out all of the bad fruit, the bits of twigs, the leaves, and the stems. Then Mrs. Brown spent most of the afternoon over the stove cooking the fruit and sealing it in glass jars so that it would keep.

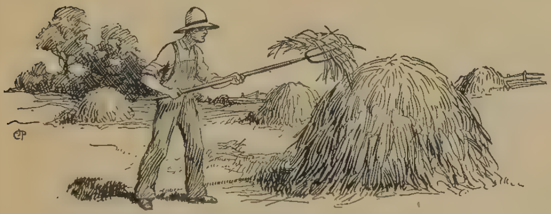
The next morning Joe and Jack carried twenty-seven jars of canned cherries down to the fruit cellar. How good they would taste next winter! Jack wondered how much those twenty-seven jars of canned cherries would have cost at the grocery store in New York. His family had to buy all the canned cherries they ate.

THINGS TO THINK ABOUT

1. What kind of shade tree would you like to plant?
2. How many trees can you name that bear fruit?
3. How many kinds of fruit have you seen growing?
4. What things did you eat this week that grew on trees?
5. How many kinds of canned fruit have you seen?
6. Where does the canned fruit you eat come from?
7. Which is easier to carry a long distance from the country, fresh cherries or canned cherries?
8. See if you can find out from your mother or someone else how fruit is canned so that it will keep.
9. Have you ever helped do anything to save food? What was it?
10. Canning fruit is a wonderful thing. Can you tell how it is useful to us? Is canned fruit sold in the stores you know?



As the wheels turn they make the long knife slide back and forth to clip off the stems of grass.



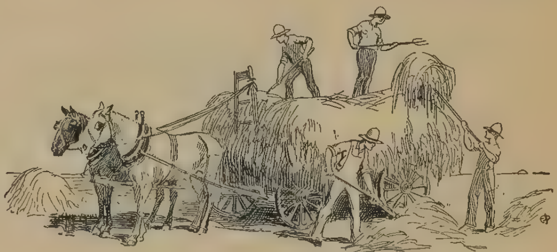
Tell what this farmer is doing.

HAY MAKING

After you have read this story tell how the farmer gets food ready for his four-footed helpers to eat in winter.

Hay making began soon after Jack came to the farm. Mr. Brown needed plenty of good hay for the cows and horses to eat in the winter. Then there would be no grass in the pasture field.

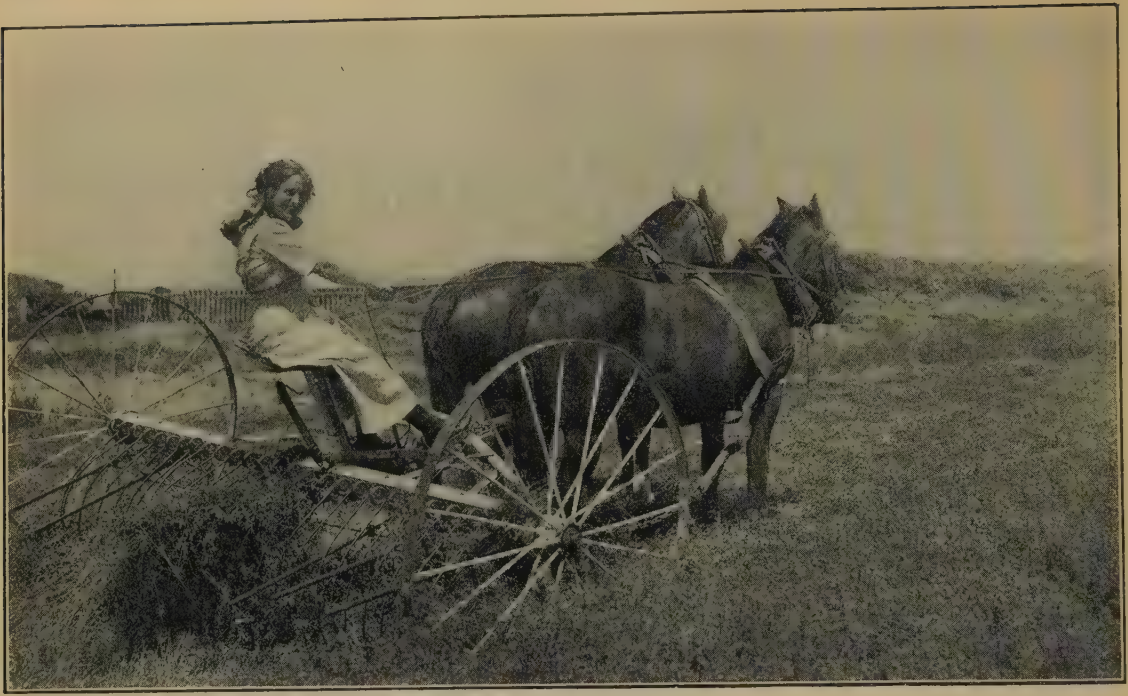
Ever since the snow had melted, Mr. Brown had kept the cows out of the hay field. He wanted the grass to grow tall. Then it would make a great deal of hay for winter feed.



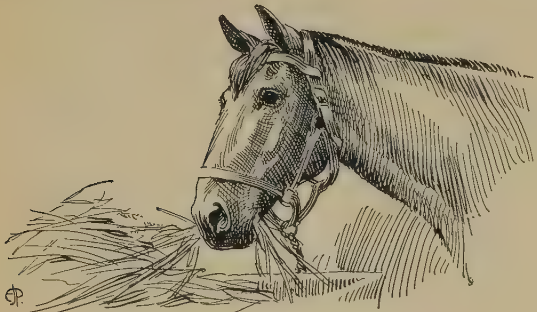
Who are the two people on the load of hay?

Mr. Brown was not pleased with the hay crop this year. By now the grass should have been as high as Jack's waist. But it was only knee high. That was because there had been very little rain in May. Grass needs rain to make it grow tall. But even if the grass was only knee high it was ripe and ready to be cut.

To make grass into hay it must be cut. Then it must dry in the sun.



What does this machine do?



What is the horse doing?

Any boy or girl can cut a little grass with a pair of scissors. But to cut a field of grass, the farmer needs a machine with a knife that cuts close to the ground. This kind of machine is called a *mowing* machine.

In the early morning the grass is wet with dew. One bright morning, after the sun had dried the dew, Sam hitched two of the farm horses to the mowing machine. Round and round the hayfield they went. "Clip, clip, clip," sang the knives in the mowing machine as they cut the green grass.

The grass lay on the ground in the warm sun until the next afternoon. Then it was dry. Hay is only dry grass.

Mary came riding to the hayfield on a big hay rake. She sat on a seat over the rake and drove Roy and another horse. She drove across the field so that the rake dragged the hay into long piles. Mary was very proud of the long straight rows of hay that she made.

Sam and the two boys came with pitchforks. They forked the hay into piles called haycocks. After the hay had dried in the cock for a day or two, it was ready to go into the barn.

While Mary was raking and Sam

and the boys were cocking the hay, Mr. Brown was driving the mowing machine and cutting more grass. Everyone worked extra hard at haying time. They worked early and they worked late.

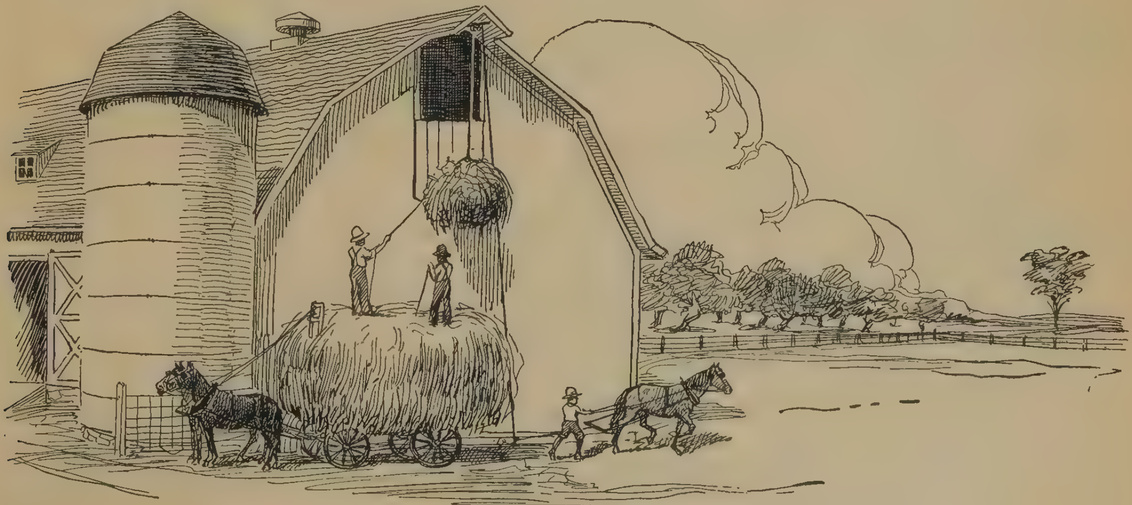
"I hope we can cut all this grass before it gets too old and tasteless," said Mr. Brown, "and I hope we can get the hay into the haymow before it rains." Hay is not so good after it has been wet.

Soon Joe and Jack came driving to the field in the hay wagon. Mr. Brown and Sam used long-handled forks to pitch the hay up to them. The boys placed the hay on the wagon and tramped it down. They loaded the hay so well that not a single one of the thirty loads slipped off.

Several times a day the boys drove proudly to the barn, sitting high upon loads of hay. At the barn Jack drove the horse that pulled the rope which lifted the hay from the wagon to the haymow. There it was dropped in a big pile in the center of the mow. Sam and Joe helped to spread the hay evenly over the mow. They tramped it down, to make it tight and even. The hay would stay in the mow until it was fed to the horses and cows the next winter.

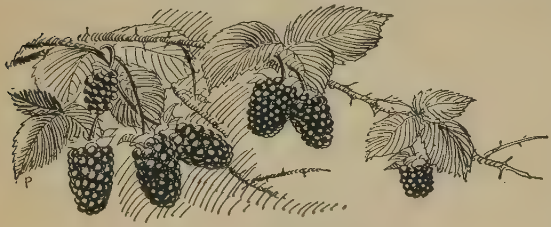
THINGS TO THINK ABOUT

1. What kind of weather do you think the farmer wants at haying time? Why do hay makers need to work quickly?
2. How do horses help in making hay?
3. Perhaps you can find a picture showing the way men made hay before they had mowing machines.
4. In how many ways do you think hay may be of use to you?
5. Do you think that factories where machinery is made have anything to do with hay making? If you think so, tell in how many ways you think they help.
6. How is making hay like canning cherries?
7. In your neighborhood what do horses and cows eat in winter?
8. In some neighborhoods hay is packed in tight bundles. It is then called baled hay. Visit a feed store in your neighborhood and find out where the baled hay came from.



Explain what these people are doing.

Blackberry bushes with a fine crop. Do you see the thorns on the bushes?



A branch of a blackberry bush.

THE BLACKBERRIES

Men have gone to the wild places of the earth and gathered wild plants since before anyone can remember. Perhaps you have seen some useful wild things growing. This story tells about the fun of picking wild fruit.

By the time the last load of hay was in the barn, the blackberries were beginning to ripen. Early one morning Jack, Joe, and Mary went to pick the wild blackberries. Each had a tin bucket. They went along the fences and through the woods where the thorny blackberry bushes stood in little clumps.

Some of the berries were green, some were red, and some were black. The black ones were the ripe berries. The red ones would soon be ripe.

The pickers soon had black fingers from the blackberry juice. The thorns caught their clothes. Sometimes, if the pickers were not careful, the thorns scratched their hands. Jack was plucky. He did not mind a few scratches. He thought it was fun to pick the ripe berries and to be out in the woods and fields away from any house.

Mary told the boys how good the berries would taste at dinner, and what good jelly they would make to put away for winter.

As Jack began to pick from a large thick bush a pretty bird fell to the ground and flopped about. Jack thought that the bird had a broken wing. He stooped down and put out his hand. He wanted to pick her up. The bird flopped along just ahead of him. She flopped and flopped. Jack followed her. She led him far away from that bush. Then she flew away.

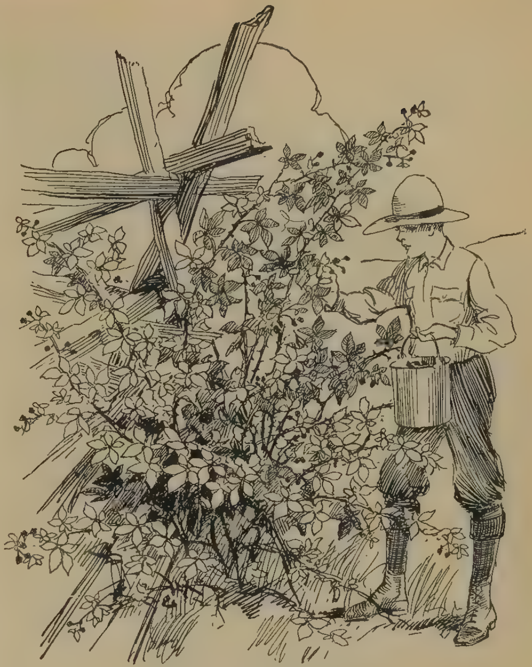
That was Mother Dove's way of leading people away from her nest. She just made believe that she was hurt. Jack went back to the bush and saw two beautiful white eggs in a shallow nest no higher than his head. He did not touch the eggs. A little while before he had heard a dove saying, "Coo-oo-oo, coo-oo-oo."

Presently a rabbit went bounding away from another bush. Blackberry bushes make homes for many of our wood friends.

Soon the sun began to get hot. The children were glad when they came to a spring. A little stream of clear water ran out from under some rocks. They all had a good drink of cool water.

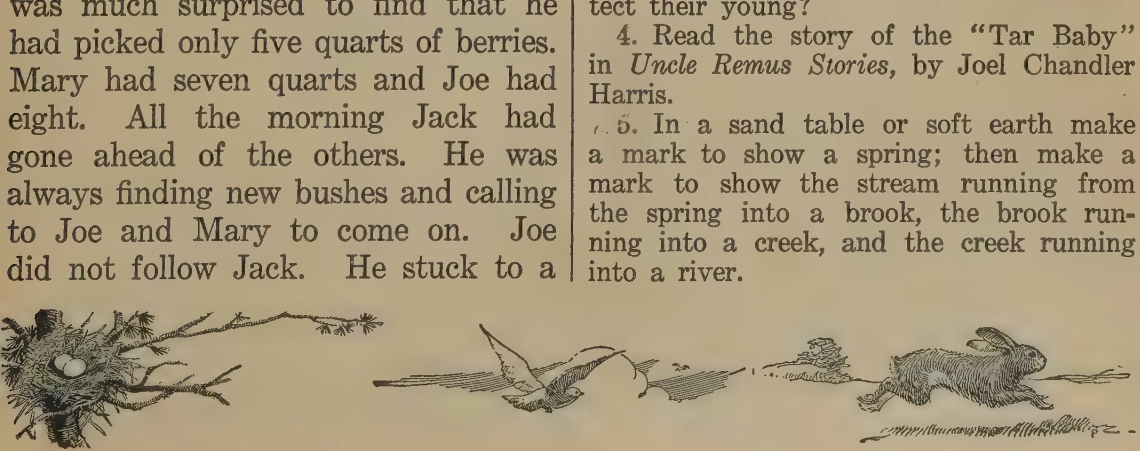
"Jack," said Joe, "maybe that little spring is the beginning of a big river. Look! The water runs across that field to a larger stream. Let's follow the stream and see where it goes. I wish we could follow it to the ocean. Don't you?"

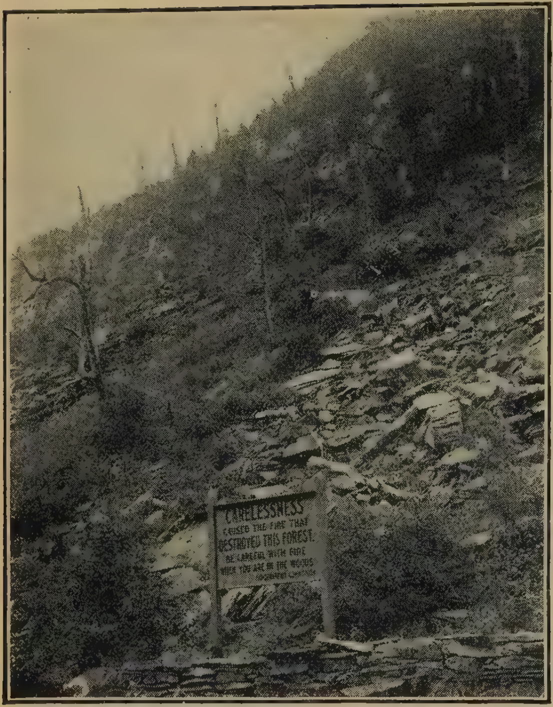
When the children got home Jack was much surprised to find that he had picked only five quarts of berries. Mary had seven quarts and Joe had eight. All the morning Jack had gone ahead of the others. He was always finding new bushes and calling to Joe and Mary to come on. Joe did not follow Jack. He stuck to a bush until he had picked all the ripe berries that were on it. He knew that the way to get berries is to stick to your bush.


What is the boy doing?

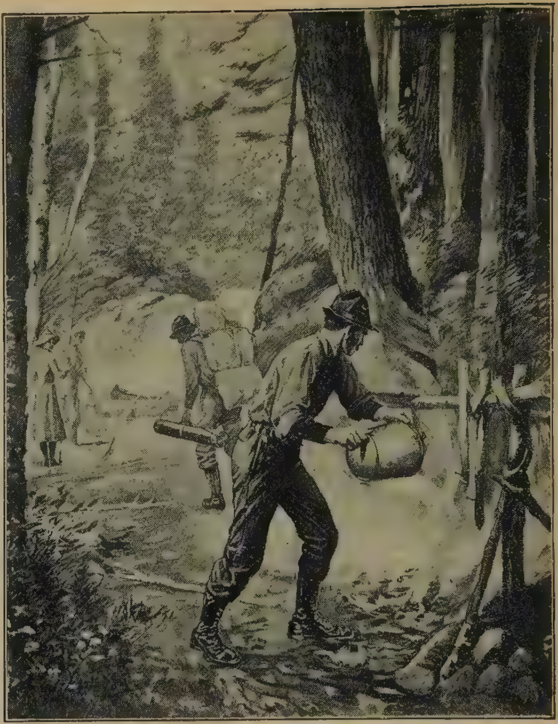
THINGS TO THINK ABOUT

1. Is there any place in a city for wild blackberries to grow? any place for springs?
2. Make a list of the wild flowers or fruits that you have picked.
3. In what ways do mother animals protect their young?
4. Read the story of the "Tar Baby" in *Uncle Remus Stories*, by Joel Chandler Harris.
5. In a sand table or soft earth make a mark to show a spring; then make a mark to show the stream running from the spring into a brook, the brook running into a creek, and the creek running into a river.





Can you read the sign in this picture? These rocks were once covered with leaves and leafy earth. Trees once covered them with shade. What has happened?



These people are breaking camp. See the canoe, fishing rod, and folded tent. What is the man doing to the camp fire before he leaves it?

THE PICNIC AND THE BURNED FOREST

When white people first came to this country they burned many trees and cut them down in order to make room for houses, gardens, and farms. That was a long time ago. Now lumber is getting scarce. Lumber costs a great deal more than it once did. Perhaps you can find the reason as you read this story.

"Alice," said Mr. Brown one evening at supper, "I'm glad the hay is all in the barn. Everybody has worked hard. I think we might celebrate the hay harvest by having a picnic. I can spare a day. Do you think we could persuade the children to go on a picnic tomorrow?"

"Yes! Yes!" came from several voices at once.

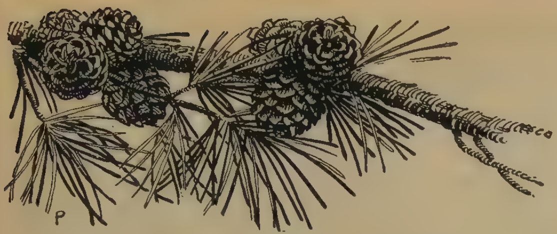
"Let's call up the Starks and see if they will go with us."

In two minutes' talking on the telephone the picnic was all arranged.

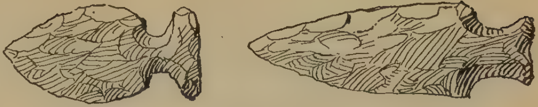
The next morning, after breakfast, Mary and her mother packed the lunch basket.

At ten o'clock the two automobiles started to Stone Hill, eight miles away. Stone Hill was the highest hill anywhere in that part of the country.

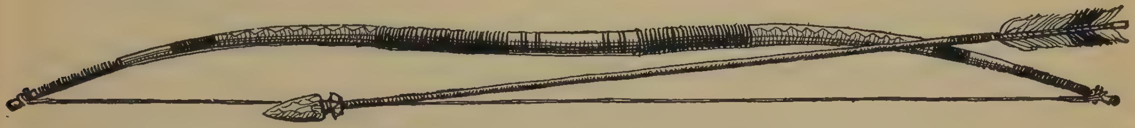
There was an old road part of the way to the top of Stone Hill. The road had been used by the wagons that hauled logs. There were so many stones in this road that the automobiles could not go up it. The people left the machines and walked



Branch of a pine tree. The cones hold seeds. The long, narrow leaves are called needles.



Arrowheads made long ago by the Indians.



Bow and arrow used by the Indians.

up the stony road. At last the road became only a path through the trees. Then it became steeper and steeper. Sometimes they had to climb over stones as big as barrels.

At last the picnickers reached the top. The view was worth the steep climb. They could look down and see farms and fields spread far below them. They could see houses many miles away. They could see the church at their village. They could see the smoke from the engine of the train that brought the daily mail.

"All this," thought Jack, "is very different from the miles of houses and streets and ships that I have seen from the top of a very high building in New York."

At noon they all climbed up on a big bare rock to eat dinner. While they sat there in the cool breeze, Mr. Brown told Mary and the boys about the Indians who once lived in that neighborhood and who came to that same rock to hold council meetings.

"Maybe I can find an arrowhead," said Mary. She slid off the rock. So did the boys. They began to dig in the leaves and loose dirt. "I have found one," cried Mary, as she held up a small piece of stone. She was much pleased. Joe had been looking for an arrowhead for several summers but he had not found one on the farm.

There were no trees on the top of Stone Hill. That is the reason the picnic party could see out across the country from the top of the hill.

There were no trees on the hill because of a forest fire and a sawmill. A year before some careless campers left a camp fire burning in this forest. Soon the dry leaves caught fire, then the small trees, then the larger trees. The fire burned all the trees on one side of Stone Hill and all the trees on the top of the hill. The people who lived in the neighborhood came to fight the fire. By much hard work with shovels and axes they made an open place through the woods. But the fire would have jumped across the opening if the wind had not

The forester in his lookout on top of a mountain in a very large forest. If he sees a fire he will call people by telephone so that they can go quickly to the place of danger and put out the fire before it grows big.

begun to blow the other way. The change in the wind saved the forest on one side of the hill. Every single tree on the other side and on the top was dead.

The hill had been covered with pine trees. The leaves of pine trees, called needles, burn easily. If a fire gets started in the tops of pine trees, when the wind is blowing hard, it sometimes runs through the forest as fast as a man can run. The fire kills the big trees as well as the little trees.

"Forest fires are terrible things," said Mr. Brown. "They have been killing trees in all parts of our country for a long time. That is one reason the price of lumber has gone up. I'm glad the Boy Scouts and the Camp Fire Girls are doing their best to stop forest fires."

"We had a tree-planting day at school last spring," said Mary. "We called it Arbor Day. We planted nut trees in the school yard. Nearly all the school children also planted trees in their own yards."

"Tree planting is a fine thing," said Mr. Brown, "but the big thing is to stop those terrible forest fires and give the trees in the forest a chance to grow. I'm going to set out a lot of young trees next spring on that rocky hill in the corner of the far pasture."

Two men were cutting trees near Council Rock.

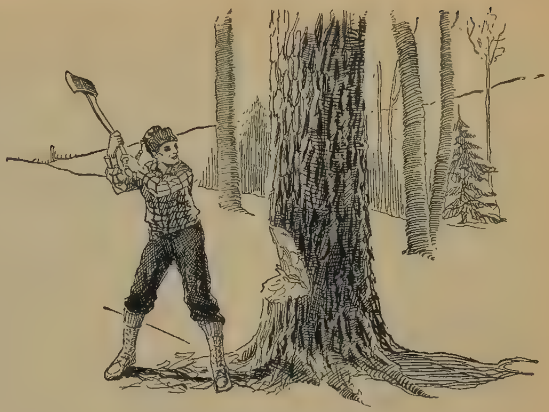
Jack watched them. The men had axes. They cut a big notch in one side of a tree. Then they sawed the tree nearly through with a long two-handled saw.

"Stand here," said one of the men to Jack, "so that the tree will not fall on you." Jack watched that tree. First it leaned over a little bit. Then it leaned some more. Then it fell with a crash and a roar. Some of the limbs were broken. Others were driven into the ground by the great force of the heavy tree as it fell.

The woodsmen cut off all the limbs. When they had finished the tree was a long, straight log. The men took a two-handled saw, called a cross-cut saw, and cut the long, straight trunk into shorter saw logs for the sawmill.

While the men were sawing Jack counted the rings on the stump of the tree. He had heard that a tree adds one ring to its trunk every year. He wanted to know how old the tree was. He counted and counted and counted.

"One hundred and fifty-nine rings," said Jack as he finished counting. "That is how long this tree has been growing. And two men cut it down in five minutes!"



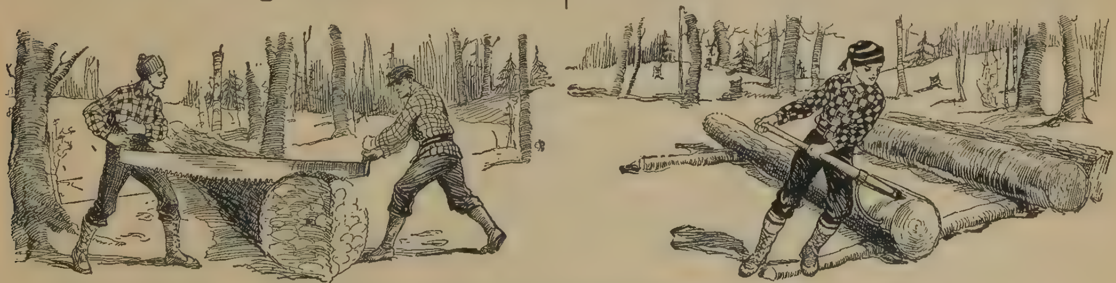
Tell about this picture.

"Toot, toot, toot," went the whistle on an engine somewhere down the hill. That was the sawmill engine. Three toots meant that they would soon want more logs to saw. Just then a log team came along. The choppers helped the teamster get started with his log.

The children followed over the rough trail as the team dragged the logs down the mountain side to the mill. As they climbed down, they saw that the mountain side was very steep and stony.

"We could never use this hillside for farm land," said Joe.

"No," replied Mary, "Stone Hill is only fit to grow trees. It is too bad that the fire has killed many of them."



Tell about this cross-cut saw, and this cant hook.

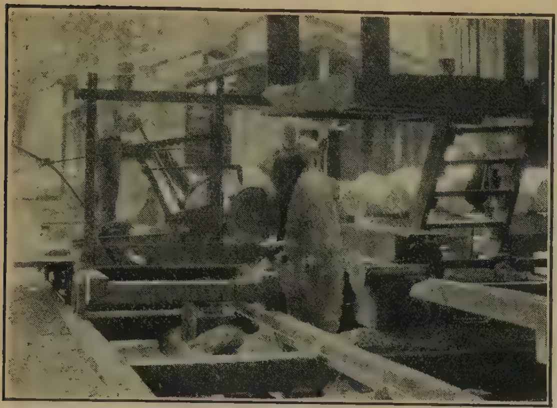
A big log is being rolled down the hillside.

The sawmill was placed on level ground at the foot of the hill. The boys wanted to watch the sawmill man as he sawed a log into boards. The round saw was running so fast that it whizzed with a whistling sound. The log was on a little car or carrier. The car ran back and forth. When the sawyer pulled a handle, the carrier pushed the log against the saw. The saw almost screamed with the noise of cutting. You could hear it as far as you could hear a boy shout. Pieces of bark and sawdust flew as the saw bit its way through the whole length of the log. Before you could count fifty it had ripped off a big heavy slab the whole length of the log.

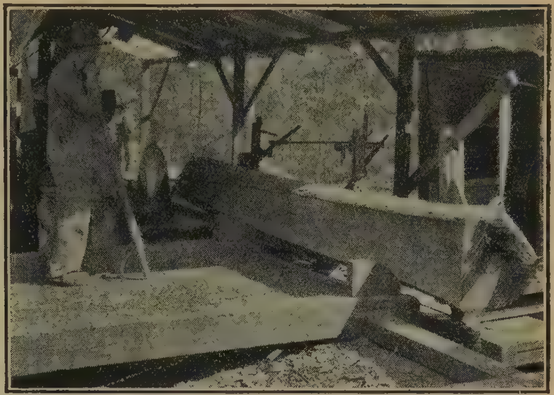
The sawyer and his helper quickly turned the log with hooks. They cut off another slab. They turned the log. They cut another slab. Then they began to cut boards. That log became a pile of boards almost as quickly as you can read about it. A second log was cut into heavy timbers to hold the floor of a barn.

"This woods and this lumber belong to the farmer who lives about a mile away," Mr. Brown told the children. "The farmer is building a new barn. Let us drive home by another road and see the new barn."

Jack had never seen a barn being built. He was surprised to see how many big timbers there were under the floor where the horses walked



Sawmill. Find the big round saw. The end of the log is close behind the saw. See the little railroad. The log will be carried against the swiftly moving saw. The saw will cut off a board.



Look at the shape of the end of this log. It is this shape because the carrier has pushed the log against the saw until a large piece, called a slab, has been cut from the whole length of the log.

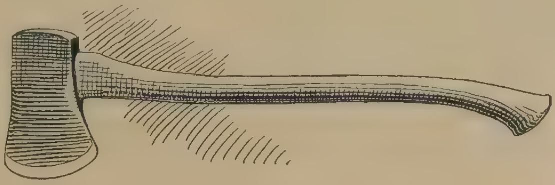
with the loads of hay. He was surprised to see the big piles of lumber lying around ready for use. Joe thought it would take five hundred trees to build a barn. Mary thought it wasn't safe for the men who were fixing the rafters for the roof. Jack said to himself, "Just wait until they go to a big city. Then they will see men working on buildings twenty stories high!"

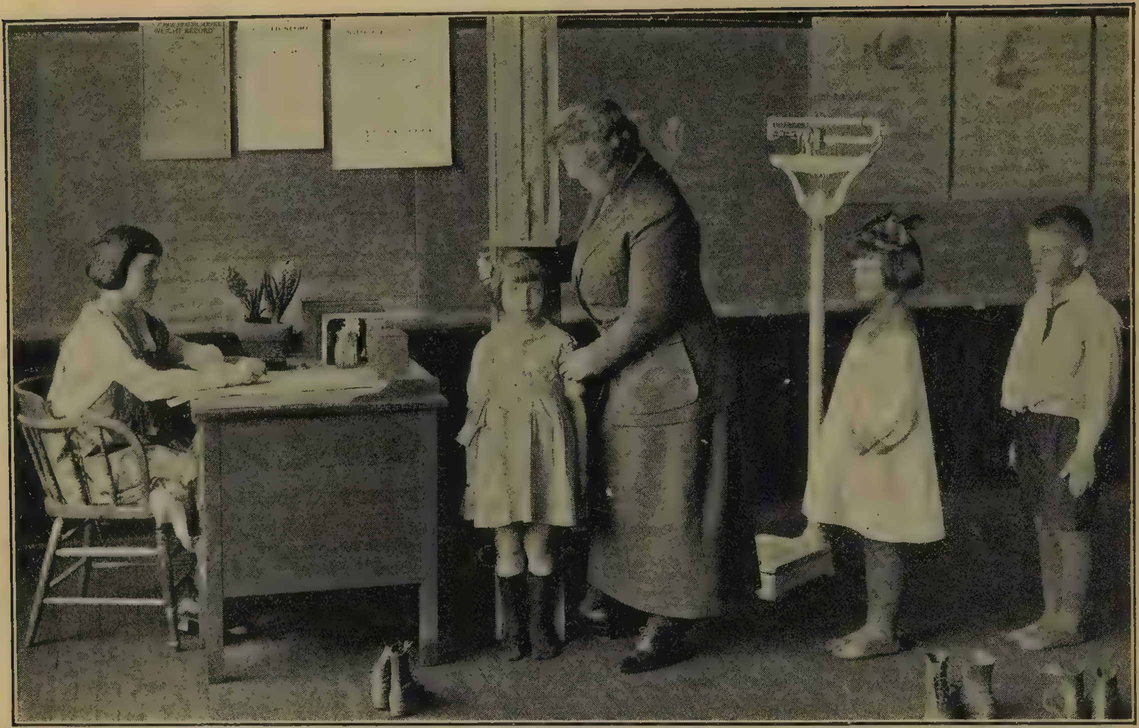
THINGS TO THINK ABOUT

1. Write a story about "Going on a Picnic."
2. The price of lumber is getting higher in this country. Can you tell why?
3. What can you tell about careless picnic parties and woods fires?
4. What do Boy Scouts and Camp Fire Girls do with their camp fires?
5. Did you ever count the rings in a stump or the end of a log or board to see how many years the tree had been growing?
6. Tell why Arbor Day is a good thing.
7. How many things do you use that are made of wood?
8. Make a list of all the other uses of wood that you can think of. What would we have to do without if we had no wood?
9. Plant a little tree or a tree seed near your home. Watch it grow. It will take a long time for it to make useful wood. Plant orange seed, acorns, nuts, or other tree seeds in a flower pot in the schoolroom, or your own home.
10. Why was Stone Hill not made into fields?
11. The United States Bureau of Forestry at Washington will send you some books about trees if you write and ask for them. Probably your State Forester will do the same.
12. Poems to be read aloud in class:

    Trees. Abbie Farwell Brown.
    Trees. Joyce Kilmer.
13. Slogan: Plant a tree each year and watch it grow with you.
14. Keep a record of the trees found near your home or your school as follows:

Kind of tree	Where found	Use





What is the lady doing for the girl? Why have the children taken off their shoes? Each child will stand on the little platform of the scales to be weighed. The teacher sitting at the desk has a book. In it she writes the date and the name, the height, the weight of each child. This will be done again later. Why?

THE HAYMOW AND THE HOSPITAL

Do you know any boys or girls who have been hurt while playing? Do you know people like the Browns who are doing things for others?

The haymow was a fine place for play. The new hay was soft and springy. The children could jump and fall upon it without getting hurt. They turned hand springs and somersaults and bounced high into the air.

One day Jack thought he would take an extra high jump. He got up on a beam near the roof. This was so high that he thought he might be able to turn two somersaults before he hit the hay. He bounced up like a ball when he hit the springy hay. Of course Joe tried it too, but he was not so lucky as Jack. He bounced over the edge of the haymow and fell to the hard floor below.

He lay still. His head was bleeding.

"Joe, Joe," cried Jack. Joe did not answer. His eyes were shut. Jack shook him. Joe was as limp as a rag doll. The children managed to carry him to the house. They laid him down on the porch. Still he did not speak or open his eyes.

Mr Brown was out in the far field at work.

Mrs. Brown went to the telephone to call the doctor. He was ten miles away visiting a sick child.

"My," thought Jack, "I wish I were in New York. There are three

The school doctor listens to the heart beats. Why does he hold his watch in his hand?

doctors within three minutes' walk from our house."

"What shall we do?" said Mrs. Brown.

"Isn't there a hospital near?" asked Jack.

"Yes. There is a new hospital in the next town. I had not thought of it. It was opened only last week. I'll take him there."

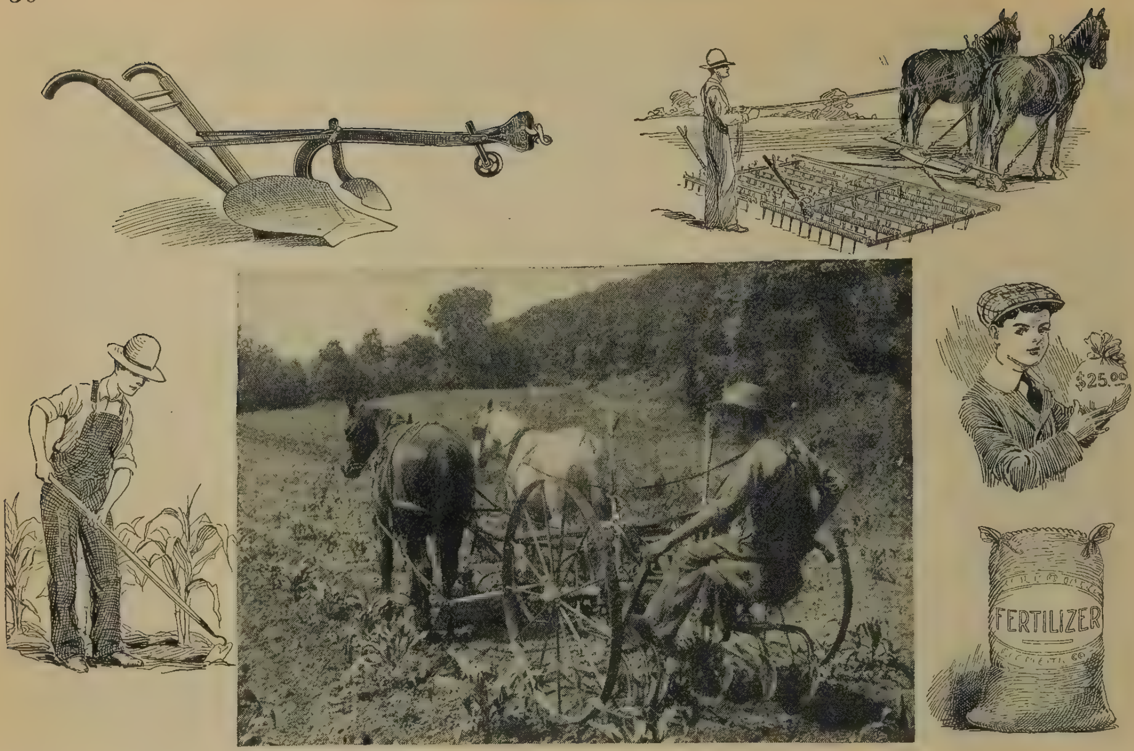
They laid Joe on the back seat of the automobile. Jack held him while Mrs. Brown drove eight miles to the new hospital. In half an hour the doctor at the hospital was putting stitches in a big cut in the top of Joe's head.

After resting two hours Joe was able to go home. Jack had to do his work for more than a week. Jack did not mind the work. But he did miss Joe when it came time to play.

Mr. and Mrs. Brown had helped to raise money for the new hospital in the country town. While they were raising the money they did not expect to use the hospital themselves. They wanted their neighborhood to have a good hospital to take care of anybody who was sick or injured.

THINGS TO THINK ABOUT

1. If there is a hospital near your home, tell where the money comes from to keep it going.
2. What is being done in your neighborhood to teach people about health?
3. Perhaps your class can plan a good health program for your school. To do this get a booklet called *A School Health Program,* price fifteen cents, from The Child Health Organization of America, 370 Seventh Avenue, New York.



Can you tell something about each of these pictures?

THE BOYS' CORN CLUB

Many people have great fun in helping plants or trees to grow. Were Jim and Frank Stark that kind of boys?

One day Joe and Jack went over to the next farm to visit the Stark boys. Jack thought that the Stark farm was different from his Uncle John's farm. Mr. Stark kept only two cows.

"They give enough milk for my family," he said. Jim and Frank Stark did not have a cow to earn money for them as Joe had.

"I wonder how the Stark boys get their spending money?" thought Jack. This is how they got it.

Mr. Stark let each of the boys have an acre of land on which to plant corn. The first thing the boys did was to join the Boys' County Corn Club. Many boys who lived in the county belonged to this club. The club was in charge of Mr. Allen, who was at the Farm Bureau. The Farm Bureau is a kind of county club for farmers. A few years before, Mr. Brown and his neighbors helped to start the Farm Bureau in their county. This Bureau had offered a prize of $25.00 to the Corn Club boy who raised the most corn on his acre of land.

Mr. Allen gave the boys a little book. This book told them all the things they had to do to grow corn. He also helped each boy to mark off his acre of ground.

A rule of the Boys' Corn Club required that the boys do all the work themselves. Jim and Frank

The county agent and the teacher of agriculture are helping to weigh the corn from one of the rows of a corn club boy's acre. Can you see an ear of corn on one of the stalks?

plowed and harrowed their field to make the earth soft and fine. They planted the corn. In about five weeks the plants were six inches tall. Then the boys went over the whole field to find places where there were too many plants. By pulling up the extra plants they "thinned" the corn.

Several times in the next few weeks they ran the plow between the rows of corn to kill the weeds. They hoed the corn. They pulled out the weeds that the plow did not get. In July the corn plants seemed almost to shoot up, they grew so fast.

"Frank," said Jim, "my corn grew several inches taller yesterday."

"Nonsense," said Frank.

"Well, tomorrow I shall measure it. Then you'll see!"

Both boys made very careful measurements of the height of the stalks of corn. They proved that the moist, warm July weather caused the cornstalks to grow several inches in a single day. Late in July the corn was taller than the boys. Then came the white bloom or tassel at the top. Then came the young ears. Every day the ears of corn got bigger and bigger.

The boys liked to see their corn grow. They had worked hard. They had cause to be proud of the splendid crop. If only their ears of corn would win a prize at the fair!

The county agent telling the corn club boys how to pick out seed corn.

More than twenty boys were trying for that prize, and dreaming at night that they had won it.

At last the corn was ripe. How excited Jim and Frank were! Mr. Allen telephoned that he would come over in the afternoon. He came to husk one or two of the rows of corn from each of the fields. Then he weighed the corn that he husked. In this way he could tell about how much corn there would be on the whole acre.

Jim and Frank asked Mr. Allen to husk and weigh some corn from another field. Mr. Stark had planted this field of corn.

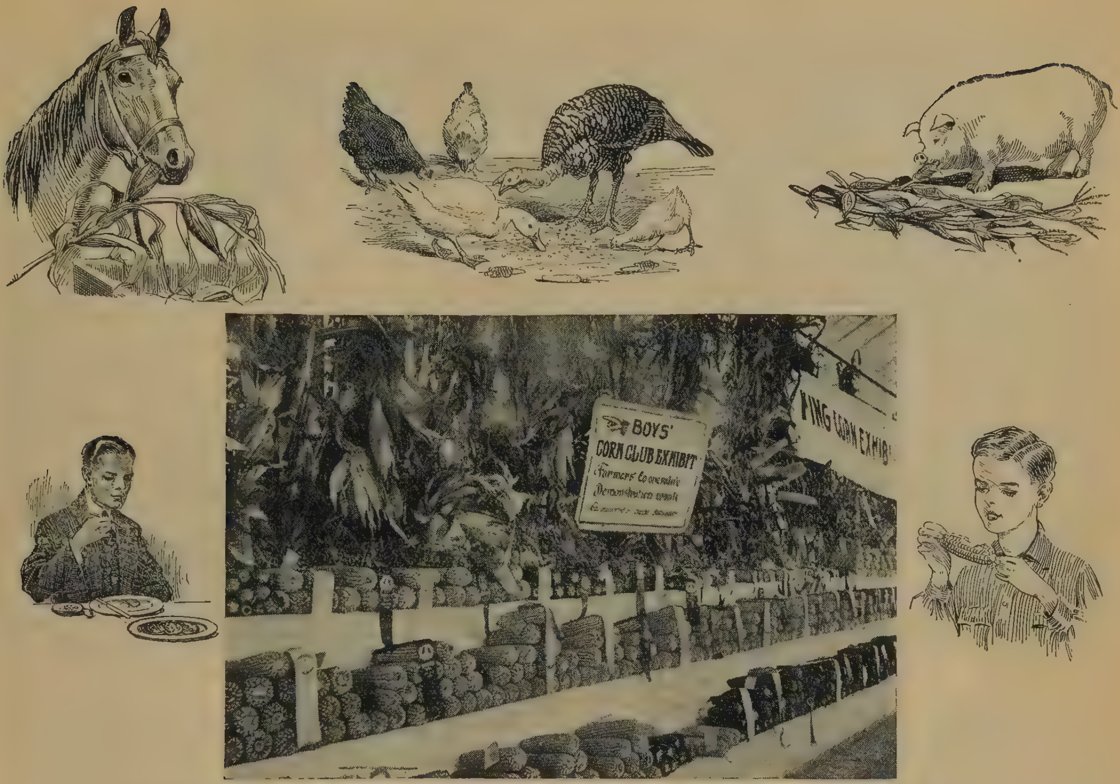
"Your corn has about five more bushels to the acre than your father's corn," said Mr. Allen.

The boys were very much pleased. So was Mr. Stark. So was Mr. Allen. Jim and Frank had worked very hard to keep all the weeds out of the corn field. They had put two sacks of fertilizer on each acre. Mr. Stark had left a few weeds among his corn plants. He had not used fertilizer.

The weeds eat the food and drink the moisture that the corn might use. The fertilizer feeds the corn plants.

"To make corn grow tall and have big ears of grain it must be weeded and fertilized," said Mr. Allen.

Jim and Frank husked all the corn



Can you tell something about corn and boys; corn and men; corn and pigs; corn and horses; corn and chickens?

from their acres. They sold it to a man in the village. He hauled ice in summer and coal in winter. He needed corn for his horses to eat. Jim Stark got forty dollars from his acre of corn. Frank got a little more than forty dollars. Neither of them got first prize in the club. The first-prize boy sold his corn for fifty dollars. He also won the Farm Bureau prize of twenty-five dollars. But all the Corn Club boys had learned how to grow corn well.

THINGS TO THINK ABOUT

1. Why did Mr. Brown and his neighbors start a Farm Bureau? Why did they give a prize to the boy who raised the most corn?

2. Which member of your class can write the best letter to the United States Department of Agriculture, at Washington, for books about boys' and girls' club work?

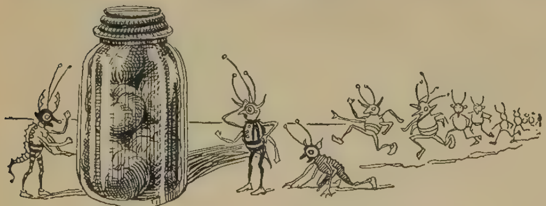
3. Do you know of a boy or a girl who has won a prize? How did he win it?

4. If your county has a Farm Bureau, find the name of the county agent. What does he do?

5. Is a county as big as a state? Is it bigger than a town? What is the name of the county in which you live? If you live in the country, perhaps you can find out how much an acre of good corn is worth near your school. An acre is a piece of land that is nearly seventy yards square. Perhaps you can measure seventy yards along the edge of your school grounds or a field or a road.

6. Perhaps you can plant a few grains of corn or wheat or oats or garden seeds in a box of rich earth. Plant some more in a box of very poor earth. Keep both boxes warm and well watered. See what will happen.

Tell what is being done in this schoolroom.



This is the way the artist makes us think of germs. What would happen to the tomatoes if there were a tiny hole in the jar?

THE GIRLS' CANNING CLUB

After you have read this story, tell some things which Molly Stark can do as well as her brothers.

Molly Stark was Jim's and Frank's sister. The summer that she was thirteen she joined the Girls' Canning Club. The club was managed by the domestic-science teacher in Molly's school. Every girl who belonged to the club promised to grow one-eighth of an acre of tomatoes. Molly was allowed to ask her brothers or her father to help her to get the ground ready for the plants. All the other work she must do herself.

Molly bought the young tomato plants from Mr. Allen at the Farm Bureau. She planted them in her tomato patch. She hoed the ground about them. She pulled out the weeds. She picked off the worms which got on the vines.

How those tomato vines did grow! Soon green tomatoes began to appear on them. Molly watched the tomatoes. They grew very fast. One morning she found the first red tomato. This made her very happy, for she had worked many hours in her tomato patch.

The tomatoes continued to ripen. Every day Molly picked a basket full. She wished she might sell them as Jim and Frank had sold their corn. But all the people in her neighborhood grew tomatoes in their gardens. She wished that she might store the tomatoes as her father stored corn and hay. But tomatoes will not keep that way.

"It is hard work," thought Molly, "but I must can my tomatoes just as mother cans cherries and blackberries." Tomatoes and other vegetables will keep for months if they are heated and then tightly sealed so that air cannot get into or out of the jar or can.

So Molly canned her tomatoes. She worked many hours in the kitchen. She worked many hours over the hot stove. At the end of the tomato season she had rows and rows of jars full of tomatoes.

The domestic-science teacher at the school knew of a grocery store in the city that sold homemade foods. This store bought dozens and dozens of jars of tomatoes from Molly and from other members of the Canning Club. Jim and Frank got a barrel from the barn for Molly. They put straw in the barrel. They helped her to pack the jars in it.

"Now remember," the teacher told Molly, "be *sure* that each jar touches *nothing* but straw; straw at the bottom, straw at the top, and straw on every side."

After she had paid for the jars, Molly had almost as much money left from her eighth of an acre of tomatoes as the boys got from a whole acre of corn. And the little patch of tomatoes had made as much work as the whole acre of corn.

What is the teacher saying as she holds the tomato in her hand?

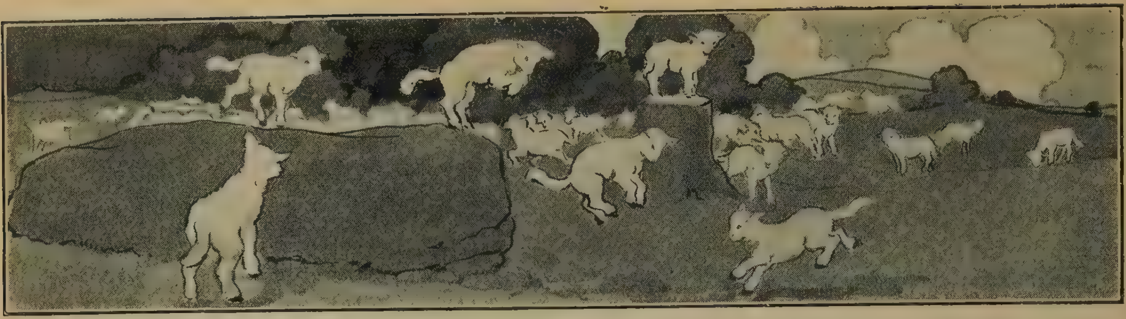
Tomato vine.

THINGS TO FIND OUT

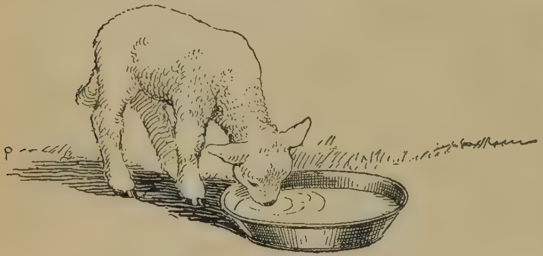
1. Write to the United States Department of Agriculture to find out about boys' and girls' clubs, ask also for Farmer's Bulletin No. 839. It tells about Domestic Science.

2. Make a list of things boys can do to earn money. Then make another list of things girls can do to earn money. Do you earn money? How? How much of it do you save? Tell where you keep your savings. Let the class appoint a small committee to visit a bank and talk with the bank cashier about the best way for boys and girls to take care of their savings.

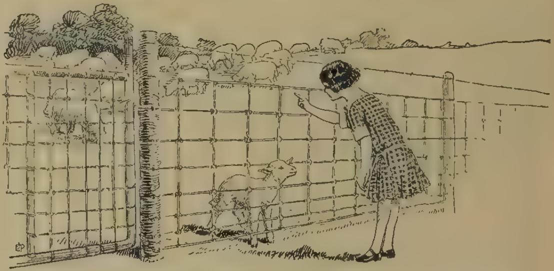
3. Is it better for you to earn money or to have the money given to you?



In sheep pastures the ground is often as bare around a stone as it is in a school playground. Why?



What is in this pan?



"Run along, Baa-Baa, go and stay with the other sheep."

THE SHEEP AND THE PET LAMB

This story tells about the way sheep help the farmer and the farmer helps the sheep.

Jack thought that the sheep were the nicest things on the Stark farm. Mr. Stark had a small flock of twenty sheep. The sheep ate grass in the pasture. They ate the leaves of blackberry bushes. They ate weeds and many other plants that the horses and the cows would not eat.

"My sheep help to keep the farm neat," said Mr. Stark to Jack. "I sell the wool and the young lambs. In this way I make a little extra money for the farm."

Mr. Stark had twenty-seven lambs. Jack was very fond of watching the lambs play. Lambs are almost as fond of playing as are boys and girls. They love to run. But the game they like best is a jumping game. There was a stump of a tree and a rock two or three feet high in the pasture field on the Stark farm. After the lambs had had a nap under the shade trees they would have a game of jumping off the stone or the stump. They would take turns. Sometimes they would alight stiff-legged. Sometimes they would alight running. Then they would shake their heads and kick up their heels for joy as they ran around to take their turn for another jump.

As soon as the sheep saw anyone watching them through the fence, one of the sheep would run over to the fence to see the people. Her two lambs followed her. This sheep would rather be with people than with sheep. Her name was Baa-baa. She belonged to Molly's sister Jean.

Which lamb is getting its breakfast?

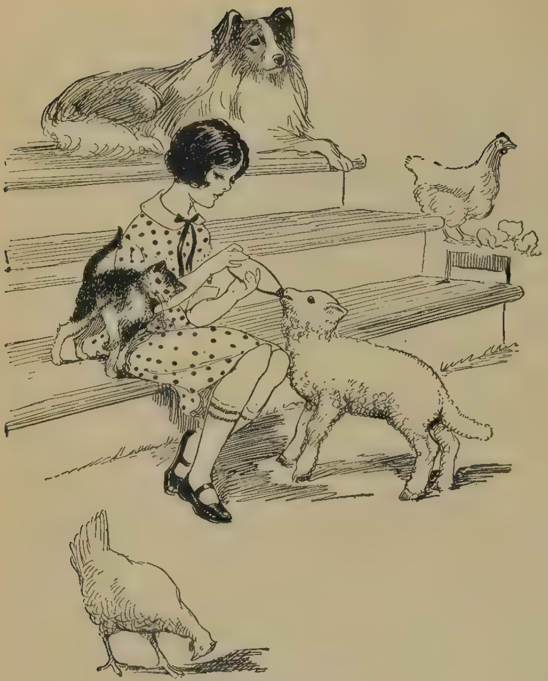
Baa-baa was Jean's pet. Two years before a mother sheep had died. Her baby lamb was only one day old. It cried for its mother. It cried for a drink of milk. It cried because it was cold. Baby lambs nestle close to their mothers in cold weather to keep warm.

Mr. Stark wrapped the lamb in a grain sack. He carried it into the house. He laid it behind the kitchen stove to get warm. Jean stroked its head. The lamb reached up, took her finger in its mouth and began to suck. It was *so hungry*. It had no teeth, but it could suck hard. Mrs. Stark warmed some milk and put it into a bottle. She put a rubber nipple on the bottle. The lamb sucked milk through the nipple. It wiggled its tail with delight. Then it took a long nap, wrapped up in the grain sack behind the kitchen stove.

Mr. Stark gave the lamb to Jean for her very own.

"Take good care of it and feed it regularly," he said. For a few weeks the lamb required a lot of care. It had to be fed almost as often as a baby is fed. As the lamb grew bigger it did not need to be fed so often. Then it learned to drink milk from a pan.

Jean fixed a box for the lamb in the woodshed near the kitchen door. One side of the box was open so that the lamb could go in and out. On



Tell about this picture.

the floor of the box was a nice bed of straw. This box was the lamb's home.

If anyone opened the kitchen door Baa-baa ran to get some milk. Sometimes she slipped into the kitchen to see Jean and the rest of the people. Baa-baa was sure she was one of the family.

When Jean walked about the yard Baa-baa followed. Baa-baa even wanted to go to school with Jean. Mrs. Stark had to fasten her in the woodshed.

"Baa-ba-ba-aa!" she would cry, "I want to go with Jean."

Trouble came with warm weather. Mrs. Stark planted flowers in the yard. Baa-baa began to eat them. Mr. Stark was very glad that the sheep ate weeds. Mrs. Stark was sorry that the lamb ate the flowers.

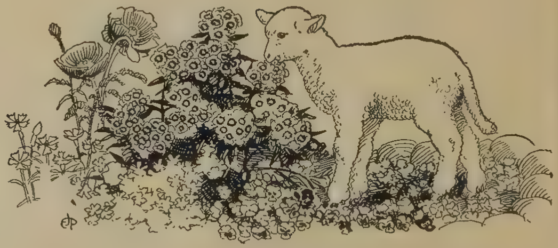
Baa-baa was put out in the field with the other sheep. She did not like to live in the pasture field. She stood in the corner of the field nearest to the house. She cried for Jean to come and take her. Baa-baa was now large enough to eat grass as the other sheep did. Mrs. Stark could not have her flowers all eaten up. So Jean went down to the pasture and told Baa-baa all about it.

"Run along, Baa-baa," she said. "Go and stay with the other sheep. I shall come down to see you after breakfast tomorrow morning. Run along. That's a good lammy."

Jean had not been in the house fifteen minutes before Baa-baa was at her heels. Baa-baa had found a hole in the fence. Pet lambs are very smart at finding holes in fences when they are put with the other sheep. Many times Baa-baa surprised the family by coming to the kitchen door, or walking right into the kitchen for a lump of sugar or a crust of bread.

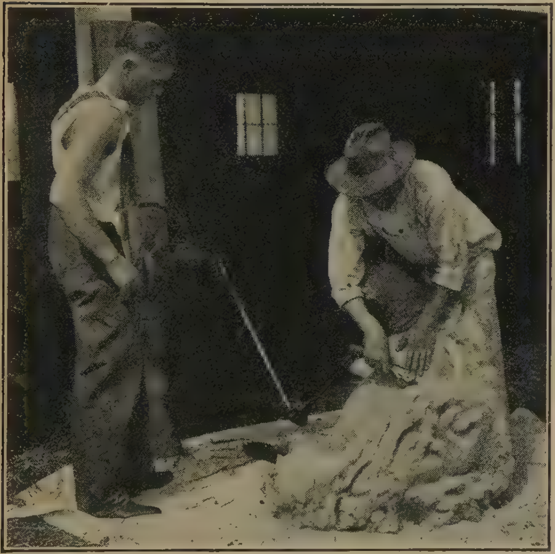
THINGS TO THINK ABOUT

1. If you had a farm would you keep sheep? Why?
2. How did the sheep earn money for Mr. Stark?



Why was it that Baa-Baa could not stay in the yard?

What is the dog saying to the sheep? What will the sheep do?



Shearing Baa-Baa. One man turns a handle that makes the clippers hum and Baa-Baa's coat is coming off. Who will wear it next?

WOOL AND SHEARING THE SHEEP

People often speak of the increase of the flocks. Tell from this story what this saying means.

When Baa-baa was a year old she had a thick, warm coat of wool. The wool was nearly as long as Jean's fingers. The wool kept Baa-baa dry and warm. Snow could lie upon her back in the winter time. She would not even know that it was there.

Soon the weather became warmer. The thick coats of wool made Baa-baa and the other sheep very hot. Sometimes they would stand about with their mouths open and pant.

"Shearing time has come," said Mr. Stark. The next morning he fastened the sheep in the barn. One by one he laid them down on their sides. He took clippers like those the barber uses. Then he cut off the woolen coats. He gave each sheep a haircut all over. The sheep were glad. They were so much cooler.

When Baa-baa's thick woolen coat was cut she looked very small. Jean hardly knew her. Mr. Stark wrapped Baa-baa's wool, or fleece as it is called, into a little bundle. He tied the bundle with a string. He weighed the fleece. It weighed

Can sheep eat grass in steep places where the farmer cannot plow?

seven pounds. Mr. Stark sold the wool for forty cents a pound. That was Jean's money. Her father had given Baa-baa to Jean.

The next year Baa-baa had twin lambs. She raised both of them. Baa-baa was very proud. So was Jean. The butcher offered Jean $11.00 apiece for the lambs. Jean would not sell them. Neither would Baa-baa.

"Jean is going to have a flock of sheep," said Mr. Stark. "She surely will have a flock of sheep if she does not sell any of them until Baa-baa gets to be a grandmother, and a great-grandmother, and a great-great-grandmother!"

THINGS TO THINK ABOUT AND TO DO

1. Why do sheep have wool?

2. Take a piece of woolen cloth and see if you can pick it to pieces. Can you get threads or pieces of string or yarn out of it?

3. Can you untwist a piece of yarn until you get a single strand or fiber of wool?

4. Now get a piece of cotton fiber in the same way. Is the piece of wool like the piece of cotton?

5. Can you twist the strands of wool or of cotton together and make a little string or thread?

6. Can you twist hay or straw or long dry grass together and make a big coarse string?

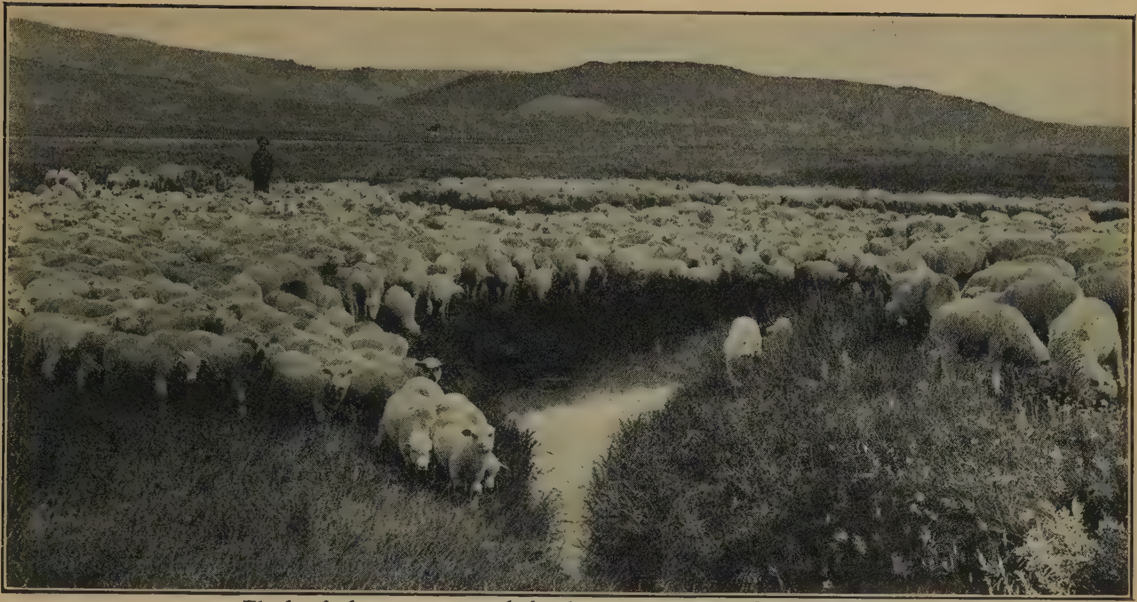
7. Try to get a piece of wool that has been cut from a sheep's coat. Put it beside your own coat. What is the difference?

8. Can you find what might have become of Baa-baa's wool after Jean sold it?

9. Do we use the coats of other animals for clothing? See if you can make a long list.

Animal	What Is His Coat?	How Do We Use It?

10. What animal skin or hair do you think is most useful to us?



Flock of sheep on a ranch in the western part of our country.

THE SHEEP RANCH

This story may make you think of some person who has traveled or worked a long way from home.

One day as Jack, Joe, Mary, and Ned were watching the lambs at play, Mr. Stark came into the field. They all enjoyed the fun.

"Jack, do you know why I love sheep?" said Mr. Stark.

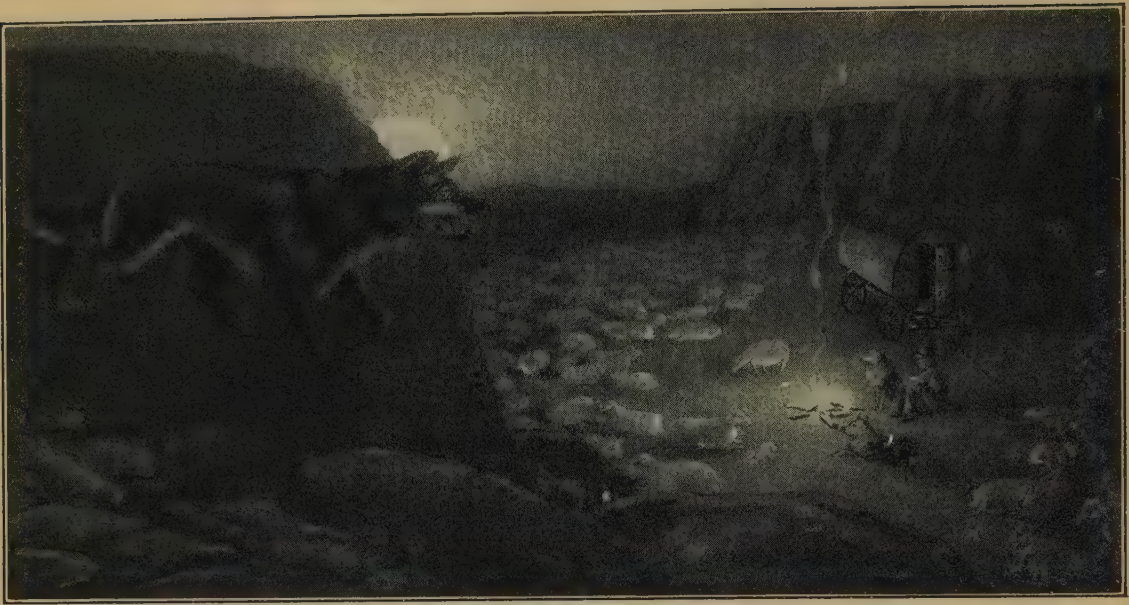
"No, Mr. Stark. Why do you?"

They all sat down to watch the lambs and to hear Mr. Stark's story.

"When I was nineteen years old, I was sick. My doctor advised me to go out West. He told me to live out of doors in the dry part of our country. Then I would be well. The first year I spent part of the time with a sheep herder. He taught me how to take care of sheep. Then I became a real herder. I had 1200 sheep. For days at a time I had no company but those sheep and my two collie dogs, Tip and Tap. I loved my dogs and I loved my sheep.

"The state where I was has very little rain. Trees do not grow there. The farmers cannot grow crops as we do here. There is nothing there for miles and miles but grass and some small bushes. There are no fields and fences. It is just open country. There is not a house as far as you can see. Sheep can live in this kind of country. They eat the grass and bushes. Soon they eat all the grass in one place. Then they have to keep moving to find more grass to eat. Also they must get a drink of water every two or three days. Often the sheep have to go far in search of water. My sheep wandered across this open pasture country which is sometimes called *the range*. I followed them as they hunted for grass.

"I had a wagon. It had a canvas



By night the shepherd's faithful helper must be on guard for wolves.

top something like a tent. There was a bed and a stove in the wagon. I carried my food in the wagon. I cooked my meals on the little stove or over a camp fire.

"I had two horses. Neither horse would leave the other. I kept one horse tied while the other ate grass.

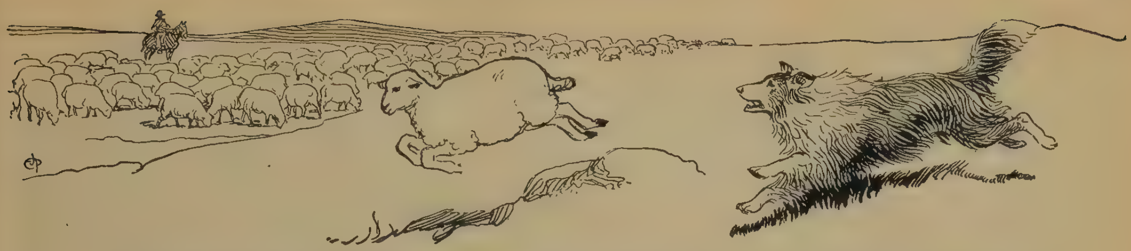
"The dogs, Tip and Tap, were a great help to me. They really did most of the work. Dogs can run so much faster than men can run. These dogs were smart. They knew their business about as well as I did. The business of Tip and Tap was to keep the flock of sheep together.

"Some sheep are always wandering away. These sheep might get lost. A wolf might get them. That is where Tip and Tap did such good work. I would see a sheep going away from the flock. It might be a long way off. I would point to it and say, 'Tap, go fetch it.' And away would go Tap, running much more swiftly than I could. He would run around the sheep and drive it back to the flock."

"I wish I had a dog like Tap," said Jack.

"At night Tip and Tap slept beside the sheep. Dogs have very sharp ears. If a wolf came prowling around to steal a sheep the dogs awoke. They barked loudly. The wolf slunk away.

"Day after day I followed the sheep through that big open country of little rain and little grass. Night after night I slept near them in my wagon. I learned to love the sheep. They loved me. When winter came I drove the sheep down into a river valley. On the low ground by the river were many hay fields and many hay stacks. This hay was not like our hay here. It was alfalfa hay. Alfalfa is a tall kind of grass that


By day the shepherd's faithful helper keeps sheep from wandering away and getting lost.

makes very good hay. The alfalfa was grown by *irrigation*. By irrigation we mean the putting of water on a crop. A dam was built in the river. The water flowed from the dam through a ditch to the fields. The water makes the plants grow tall. Many farms are irrigated and much alfalfa is grown in our Western States.

"In the winter time the sheep lived near the hay stacks. They ate alfalfa."

"Was the flock you tended the only one on the range?" asked Joe.

"No, indeed, the range country is a very big stretch of country. There are many, many flocks of sheep on it.

"Every year train loads of sheep are sent from these big flocks in the range country. People in other parts of the United States get lamb chops and roast mutton every week of the year from the sheep of the range country.

"At shearing time car loads of wool go to the woolen mills in the northeastern part of our country. The wool for your coat may have come from the range country. It is a lucky thing for city people that we have this range country to furnish them with food and clothes."

THINGS TO LOOK UP

1. Tell about the kinds of work that dogs can do for men.

2. Tell which of the following animals is the better friend of man: cat, dog, wolf.

3. Is the country near where you live range country or farm country? What is the difference between the two?

4. Find out where the meat-store man or butcher nearest your school gets the sheep and lambs he sells.

5. Let two boys pretend that they are Tip and Tap lying together under the wagon. What do you think they might say to each other if they could talk? Let two other boys be herders. Pretend that they meet at a watering place and cook supper together. Tell the class what you think they would say to each other.

6. What ways have we read about in which grass helps man? Do you think that sun and air and water help us too? How?

7. Ask your teacher to show you on a map several states where there are sheep ranches like the one on which Mr. Stark lived.

8. Let someone read the Twenty-third Psalm to the class. It is the Shepherd's Psalm.

Wolves seeking their prey.

Cowboys and their camp wagon. This picture shows a hill in the distance. The front part of the picture is a level plain. On the plains the cattle eat grass.

THE CATTLE RANCH

After you have read this story you may want to tell about other animals which give us meat or clothing.

Mary thought that Mr. Stark must have been very lonely with only Tip and Tap and the sheep for company.

"Did you ever meet anyone else on the range?" she asked.

"Oh, yes. Once in a while I would meet another sheep herder with his flock. Then we would have a good chat. Sometimes I would see a cowboy. He and I would not talk much. Sheep herders and cowboys are not very friendly."

"Why?" asked Ned. "I like cowboys. I saw a cowboy in the movies last Saturday. He wore a big hat and leather leggings. He galloped his horse after a herd of cattle. He had a long rope. He whirled the rope about his head and flung it right over the horns of one of the cattle. He pulled the rope tight and over tumbled the steer. I want to be a cowboy when I grow up, and ride a horse, and throw a steer."

"Ned," replied Mr. Stark, "the cowboys want the grass on the plains for the cattle. The sheep herders want the grass for their sheep. Sometimes they quarrel about who is to get the grass.

"Then, too, sheep eat the grass much closer to the ground than cattle. Sometimes they bite it so short that the grass gets thin. Sometimes they pull the grass up by the roots and eat the whole plant. Then there is not enough grass for the cattle. So you can see why cowboys do not like sheep."

"Why don't the farmers raise corn to feed the cattle?" asked Joe.

"Because the weather is too dry,"

The cattle in this picture are in a part of our country called the Corn Belt. Here much corn is grown. The cattle eat the corn and get fat. What are the wooden things in the middle of the picture?

This fellow's picture is on our five-cent piece. Great herds of these big animals once lived on the Great Plains of the United States.

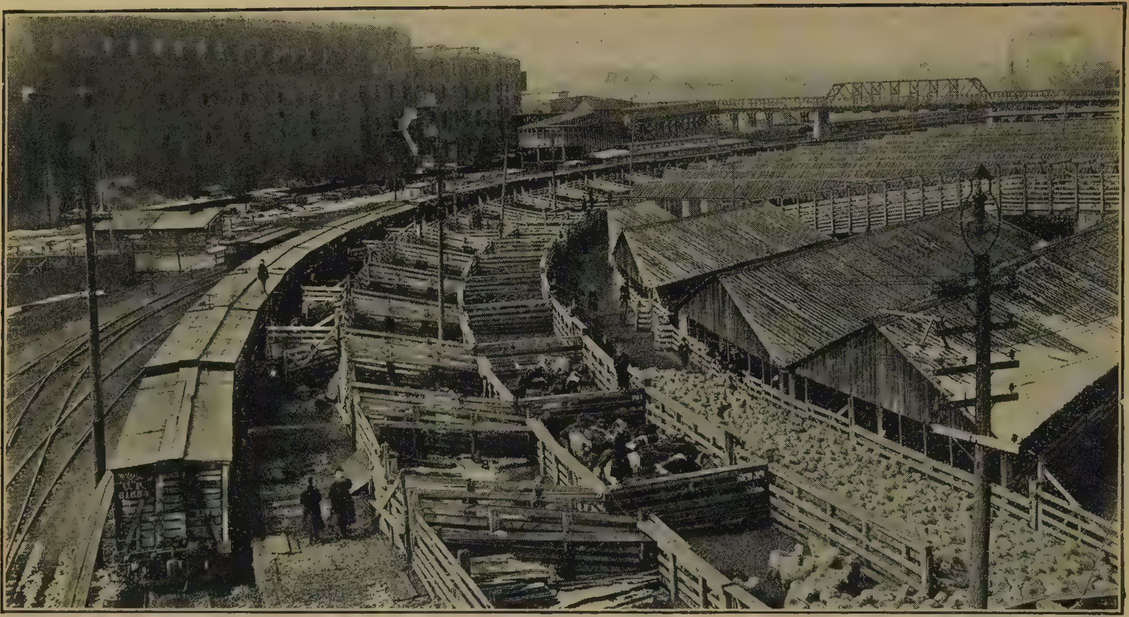
replied Mr. Stark. "These wide grassy plains get less than half as much rain as our farms do here in the central part of the country.

"But this grass country is a good place to raise meat animals. Long ago the bison, the meat animal of the Indians, roamed over the plains. Here, you see, is a picture of a bison on the back of this five-cent piece. The Great Plains are now the homes of millions of cattle and sheep."

"One of the boys at school told me that his uncle owned a ranch out West," said Jack. "What is a ranch, Mr. Stark?"

"Some parts of the plains, Jack, have been fenced off into large sections. These fenced-off pieces are called *ranches*. They are really cattle farms.

"I visited one of these ranches. It was larger than the largest city. The ranch owner used one part of his land for pasture. In the pasture the cattle walked about and ate the grass. When they were thirsty they took a drink at the watering place. A windmill pumped the water from a deep well for the cattle. In the other part of the ranch, grass and other



Stockyards in a city in the Corn Belt. What kinds of animals do you see in this picture? Train loads of these animals pass from the cars to the pens and on into the sheds.

food crops were growing for the cattle to eat in the winter time."

"Where do the cattle go from the ranch?" asked little Ned.

"They go east to farms where plenty of corn and hay are grown. The cattle eat the corn and hay, and grow fat. Then they are sold to the meat packers in our large cities. The meat packers prepare the meat. Then they ship it to the butcher shops in all parts of our country."

"Oh!" said Mary. "As soon as I get home I am going to see what city name is printed on that package of dried beef we bought from the grocer this morning."

"The shoe dealer in New York told me that my shoes were made of cowhide," said Jack. "Did the cowhide come from the same place as the dried beef did?"

"Very likely it did. The meat packers do not waste anything. They make hides into leather. They use the hair for brushes and mattresses. They sell the bones to make handles for penknives. They use the hoofs to make gelatine and glue. All the leavings they make into fertilizer."

"It seems to me," remarked Joe, "that the meat packers use every bit of a cow. They waste nothing."

THINGS TO THINK ABOUT

1. Would you like to work alone?
2. Can you think of any people in your neighborhood who do their work alone?
3. Make a list of things that you eat or use that might come from cattle.
4. Do you think there are many big cities in the sheep and cattle country?
5. What do you suppose happens to the sheep and cattle when there is a season with almost no rain?
6. Suppose the climate of your state became drier, wetter, hotter, or colder. What would happen to the farmers?

What church do you think this is? Read the story. You may go around the world and in every country you will find some building to which the people go to worship.

THE COUNTRY NEIGHBORHOOD

This story has several parts. The first part tells about the Sunday school. See if you can give names for the other parts.

On Sunday mornings the Brown family went to church. Before church there was Sunday school.

Mrs. Brown had a Sunday-school class. She had taught the village school before she was married. She liked to teach. Jack went with Joe into Mrs. Brown's class. He had seen her do many things at home. Now he found that she had much to teach him in this class.

The little Sunday-school organ was almost worn out. There was no money to pay for a new one. Mrs. Brown talked the matter over with the other teachers. They decided to have a church fair in December to get money to buy an organ. At church fairs people give things to be sold. The money is often used for some special purpose, like buying a new organ.

A lot of work was needed to get ready for this fair. About once a week the young people of the neighborhood spent an evening at the Brown home. They made things to sell at the fair. The girls made big, comfortable aprons and pretty things from lace and linen. They dressed dolls and made lamp shades. The boys carved toys from wood. They made letter boxes, bird boxes, and desk sets. Some of the women knitted sweaters and caps. They put up a few extra jars of pickles and preserves to sell at the fair.

One Saturday, about three weeks before Christmas, the people brought all their things to the basement of

After you read the story you can tell what this is.

the church and arranged them on tables.

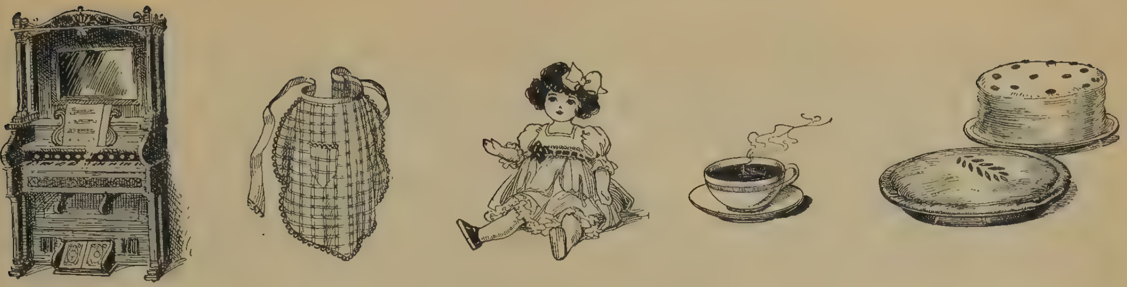
By the middle of the afternoon everything was ready and the fair began. Most of the articles were well made. The people were glad to pay a good price for them. A few things were not sold because nobody wanted to pay for careless work. The Brown children were very glad to see that their things were sold early in the afternoon.

The men and boys made long tables of boards. The women served supper. Nearly everyone who came brought something for the supper. They gave the things and then bought their own suppers. There was plenty to eat. There was baked ham, roast chicken, roast beef, big bowls of potato salad, hot rolls, hot biscuits, jam, jelly, preserves, pickles, round cakes and square cakes, chocolate cake, pumpkin pie, mince pie, and apple pie. There were tin cans full of milk and several freezers of ice cream, and steaming pots of coffee and cocoa. You could have all that you wanted to eat. The older girls and some of the women were very busy seeing that people had plenty of everything.

After supper there was an entertainment. There was music. Little Ned Brown spoke a funny piece. It was the first time he had ever done anything like that. He almost forgot. But he saw his mother sitting near. He knew she would help him out. She had heard him practice it about forty times.

Joe and Mary took part in the little play. Jack played his mandolin. As another part of the entertainment the boys blackened up as negro minstrels (players). They gave some good songs and jokes.

When the fair was over everyone



Tell how each of these comes into the story.

was tired, but all were happy. By working together they had earned nearly enough to buy a new organ. They had had a pleasant time doing it.

The Browns did many things to make their neighborhood or community a better place in which to live. Mr. Brown was the man who started the County Farm Bureau. The county agent taught the farmers how to grow better crops.

Mr. Brown was also a school director. Three other men and one woman were school directors with him. They met together and made plans for the school. They looked after the repair of schoolhouses. They bought coal for the schools. They helped the county superintendent of schools in many ways.

Mr. Brown and the other directors got no pay for this work. They believed that these things ought to be done. They did them because they were good citizens. If a neighborhood or community is a good place in which to live, everyone must help with the things that must be done. Because he helped at the fair, Jack became acquainted with people whom he had before known only by sight.

THINGS TO THINK ABOUT

1. What kind of neighborhood is a good neighborhood? Is yours a good neighborhood in which to live?
2. Make a list of the things that your family has helped to do for the community.
3. Make another list of things that you think could be done to make your community a better place in which to live. Write all the things on the blackboard.
4. Choose two things that you might help with when you are grown.
5. What would you have liked to make for the fair?
6. Would it be better for the neighborhood for one man to give the organ to the church than for everyone in the neighborhood to work for it? Can you think of other things that people do by working together?
7. How is the money raised for the things in your neighborhood which make it a better neighborhood?
8. Who manages these affairs?
9. Do these people get pay in money?
10. If you went to the fair, what would you choose for supper? Class, would that be a wholesome supper?
11. What is the difference between a *community* and just a place where people happen to live? Do you know of some things done by the government of a township, a county, a city, or a state? What is the difference between these things and a boys' club or a church fair?

In what parts of our country do we have scenes like this in winter?

GETTING READY FOR WINTER

As you read this story make a list of the ways to get ready for winter.

One day late in August, Jack heard a strange roaring sound. It was made by the wings of blackbirds as they flew in a great flock over his head. The birds turned in a big circle and settled down in the corn field for a few minutes. Then they flew away. There were so many of them that their wings made a roaring noise like the sound of a distant train. There must have been a hundred blackbirds for every finger and every toe Jack had. He wondered where they had come from. Before this he had seen only a few blackbirds at a time. He asked Mrs. Brown about it.

"Oh," said she, "those are the old birds teaching the young birds how to fly. They are training them for the long journey to the South. At the end of summer the old blackbirds fly away to the South. They are training the young ones so they will be able to fly with them. They go hundreds of miles to places where the weather is warm and where there is no snow. There the birds can find more food than they could if they stayed in the land where snow falls."

For many days Jack saw this big flock of birds taking short flying trips. Then he saw them no more. They had gone South. Robins, wild ducks, and many other birds go South in winter.

One day Jack spied a little striped wood squirrel scampering from the

In what parts of our country do we have scenes like this in winter?

corn crib with a grain of corn in its mouth. This small striped squirrel is called a chipmunk. It ran along the garden fence and into a hole under a pile of stones. Soon it came out without the grain of corn. It did this again and again. The squirrel was storing corn for winter food.

This chipmunk got its burrow well stored with corn. When the cold winds blew it stayed at home and ate corn. It is hard to find anything to eat when the ground is frozen.

Out in the woods other squirrels were laying up stores of nuts and acorns.

The birds and squirrels were not the only ones who had to think about winter. Soon there would be no grass in the pasture field for the cows to eat. Cows do not know how to put food away for the winter. Mr. Brown had to do it for them. He did the same kind of thing for the cows that the squirrels were doing for themselves.

The corn in the fields was now ready to be put away for winter food for the farm animals. The stalks of corn were taller than a man. The silo was waiting for them. A silo is a tall round building where corn is kept for the cows to eat in winter.

The whole cornstalk is chopped up fine. Then it is put in the silo. It keeps in the silo just as pickles keep in jars. It even smells something as pickles smell.

Mr. Brown hired a man to bring a big machine which chops cornstalks into small pieces. Two neigh-

See the bunches of cornstalks lying on the ground. The horses are drawing a machine which cuts the stalks of corn and drops them on the ground in bunches. In the distance men are putting the bunches of cornstalks on a wagon.

bors came with their teams to haul corn from the field to the cutting machine. Four strange men came to cut corn in the cornfield.

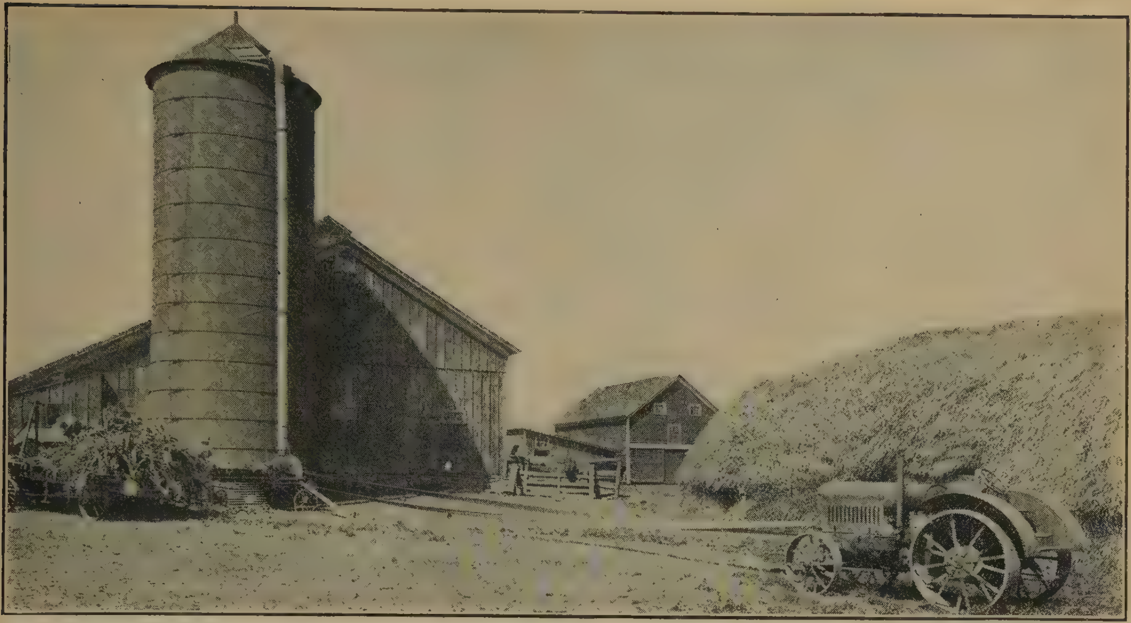
This was a busy time for everybody. In the house Mary and her mother were busy as could be. They were boiling ham and paring great pans of potatoes, snapping beans and slicing tomatoes. Mrs. Brown had baked many loaves of bread the day before. This morning she was up early making pies.

"We must have plenty of food for the hungry workers," she said.

The whole farm felt the rush in filling the silo. Joe was errand boy. He helped Mary. He helped his mother. He carried drinking water to the men in the cornfield and at the barn. Mr. Brown kept everything moving in the right order.

Jack drove the team which hauled the corn from the field to the cutting machine. He drew each wagon load of corn as near as he could to the cutter. The men helped him to unhitch the horses from the wagon and to hitch them to an empty wagon. By doing this Jack was hauling the next load while the men cut the last load.

At the silo the engine kept the cutting box whizzing. A man, called the feeder, pushed the cornstalks into the box. He pushed in the whole stalk, ear and all. The sharp knives chopped the stalks and ears into pieces about half an inch long. Fans on the cutting machine blew a stream of air. This blast of air lifted the little pieces up through a long pipe to the top of the silo and dropped them over into it. The little



The tall, round building is a silo. The machine on wheels at the bottom of the long pipe is an ensilage cutter. There is a belt from the engine to the cutter. What are the men doing?

pieces of corn stayed several months in the silo until the cows needed food.

Corn that is cut while it is still green and kept in a silo is called silage. Sometimes people eat the ears of corn. Then they make silage out of the stalks and blades.

Cows like silage about as well as boys and girls like candy. Plenty of silage along with hay and grain makes the cows give plenty of good rich milk. There is one more thing that cows need to make them do their best. They need good food and a comfortable barn. They also need to be treated kindly. Some cows love their masters. They give more milk than cows that fear their masters.

THINGS TO THINK ABOUT

1. Name all the birds you know that go South in the winter time. What birds do you see where you live in the winter time?

2. Do you think the birds could go South in winter without practicing flying?

3. What animals, birds, or insects do you know about that store food for winter?

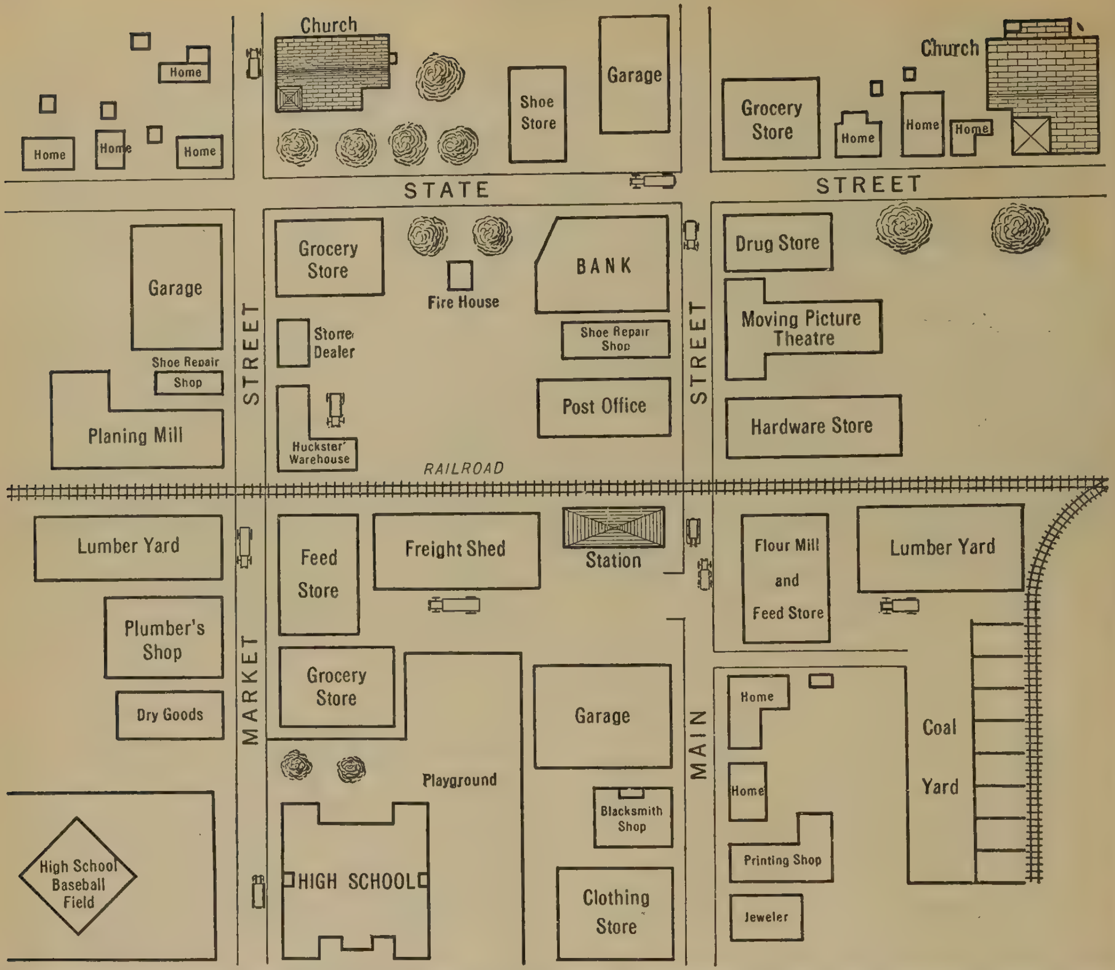
4. What did Mr. Brown do for the cows that the squirrels do for themselves? How many kinds of food are stored for animals? What food is stored for us? How?

5. Can you tell something that your state or neighborhood does to help the United States get ready for winter?

6. Do you like cold weather or warm weather better? Why? Can you name the things that you do in the winter time that you do not do in the summer time?

7. Tell how a silo far away in the country can be of use to a boy in a large city who has never even heard of a silo.

8. Would you like to have a Christmas tree for the birds? You can do this by putting your Christmas tree in your yard when you are through with it. Each day you must put crusts of bread on it for the birds to eat. Tie some bits of meat or fat to the tree. You will have fun watching the birds eat them.


Home
Home
Home
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Church
Shoe Store
Garage
Grocery Store
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Home
STATE STREET
Garage
Shoe Repair Shop
Planing Mill
Grocery Store
Fire House
Stone Dealer
Huckster' Warehouse
BANK
Shoe Repair Shop
Post Office
Drug Store
Moving Picture Theatre
Hardware Store
RAILROAD
MARKET STREET
MAIN STREET
Lumber Yard
Feed Store
Freight Shed
Station
Flour Mill and Feed Store
Lumber Yard
Plumber's Shop
Dry Goods
Grocery Store
Garage
Playground
Home
Home
Coal Yard
Blacksmith Shop
Printing Shop
High School Baseball Field
HIGH SCHOOL
Clothing Store
Jeweler

This is the plan or map of part of a country town. One can drive along the railroad from Market Street to Main Street. Pick out two buildings that are far apart and show two or three ways by which an automobile could go from one to the other. Show how a wagon would go if it went from the motion-picture theater to the high school.

THE COUNTRY TOWN

There are many ways of making a living. Some people make things to sell. Some people buy things to sell to other people. Some people do things for other people. See how many ways of making a living you can find in this country town.

The last load of corn went into the silo at ten o'clock Saturday morning. Before noon the cutting machine had gone to another farm. All the helpers were gone. Everything was put away. Even the horses were turned out in the pasture for a little rest.

It would not be a long rest for anybody. Mr. Brown and the team had to start in on Monday to help a neighboring farmer to fill his silo. The farmer was one of the men who had been helping Mr. Brown to fill his silo. They called this exchanging work.

The Browns thought they would take a little outing. Soon after dinner they went to the town eight miles away. The stores in this town had more goods than the village stores. That is why the farm people in the neighborhood drove miles to town.

"I have been wanting to see the town," said Jack as they drove along. "I wonder if it will be like a big city?"

Mr. Brown parked his car near the post office. Jack and Joe set out to look about. Ned went with them. Mr. and Mrs. Brown and Mary went from store to store buying things they needed in the house and on the farm.

This is what the boys found in town: one bank, one clothing store, one drug store, one dry-goods store, one hardware store, three grocery stores, three garages, a plumber, a stove dealer, a blacksmith shop, and two feed stores.

The feed stores sold not only bran and other feed for cows and horses, but also fertilizers and farm machinery.

Close by the railroad track the boys saw the warehouse of the huckster who bought the chickens and eggs. Near the warehouse were two lumber yards, a coal yard, and one planing mill. The planing mill made window sash and other things for people who were building houses. As the boys walked farther, they saw the printing shop which published the town paper, two churches, one high school, a shoe-repair shop, a watch-repair shop, a motion-picture theater, and, of course, a post office.

By this time the boys were tired of counting the buildings. The weather was hot. The streets were dusty. The boys decided they would not count all the houses. They went back to the post office, where they were to meet Mr. and Mrs. Brown.

While they were waiting they talked with the postmaster. He had lived in this town all his life. He knew every man, woman, and child.

"How many people live here?" asked Jack.

"Six hundred fifty," said the postmaster. Just then Mr. and Mrs. Brown came. Mr. Brown laughed when he saw what a good visit the boys were having. He asked them if they could spare the time to go to a movie. Joe and Jack and Ned jumped at the chance.

Then they all went into the theater. They saw a picture which showed just how people used to live and travel when they went out West to settle in the new country.

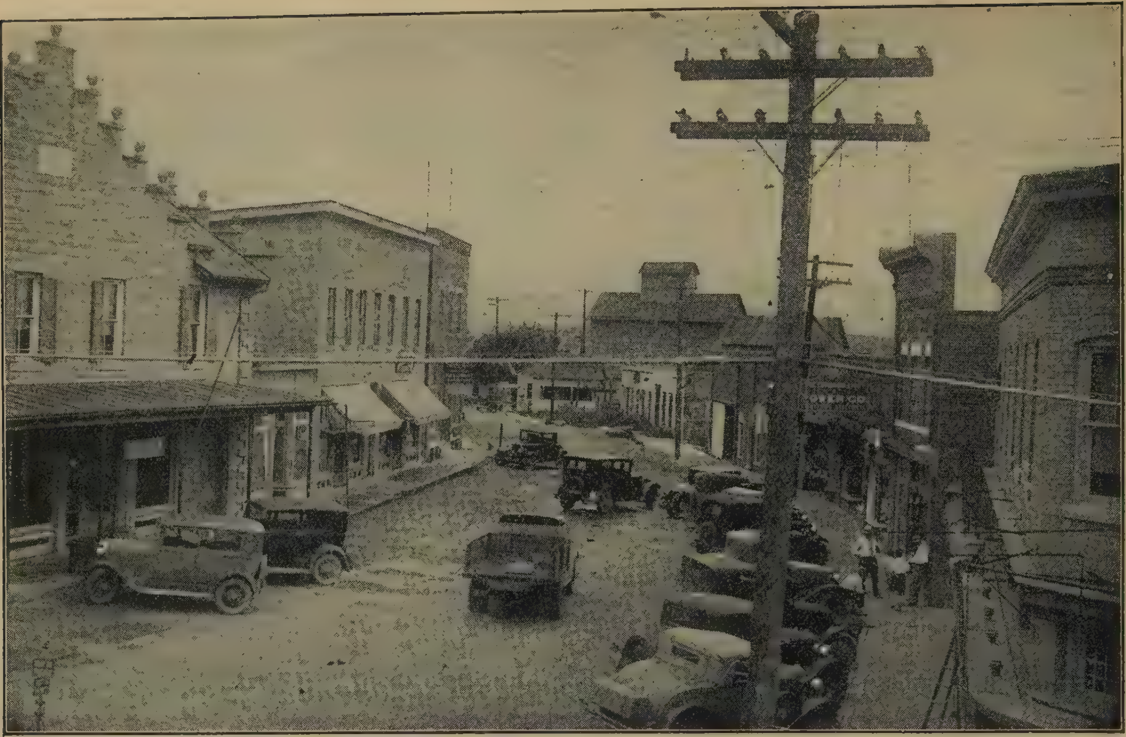
When the movie was over they went to the clothing store. Mrs. Brown bought Joe a new suit. Jack also bought a new suit. The clothing-store man told Jack that he bought nearly all his things from clothing merchants in the large cities. Jack wanted to know just where he bought the clothing. Jack wanted to go to see the place when he visited one of these cities.

The clothing-store man gave Jack a letter to the clothing merchant. Here is what the letter said:

Goldman & Company

DEAR MR. GOLDMAN,

This will introduce to you my



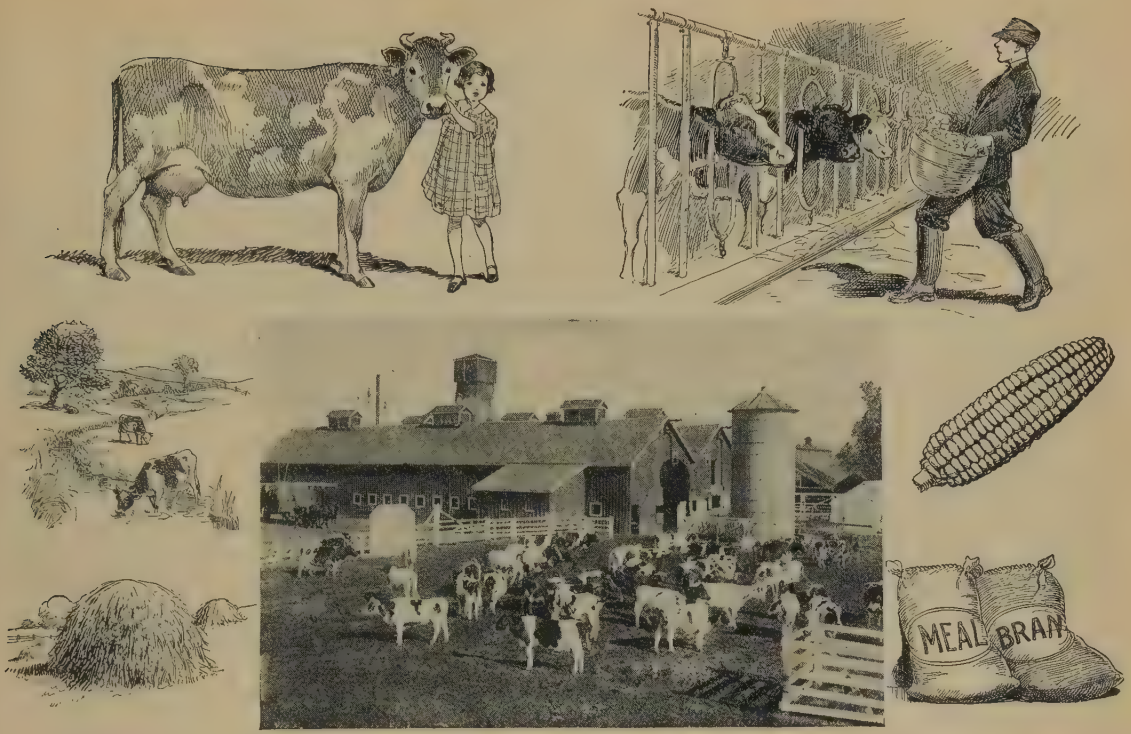
The main street of a country town. What places of business would you probably find on this street?

friend, Jack Reed. He is one of my customers. He would like to see how clothes are made. I would be glad if you would show him and his friends through your factory.

Very truly,
CHARLES FORD

THINGS TO THINK ABOUT

1. Tell how the town helped the Brown family and how the Brown family helped the town.
2. Where did most of the people live who went to buy things at the country store?
3. Make a list of the kinds of stores in your town or your city where you have bought things. What would you do if there were no stores?
4. Suppose you were Mr. and Mrs. Brown, going to the country town to do shopping for the family and the farm. What would you buy?
5. Perhaps the storekeeper who sells clothes will tell you where they are made and where he bought them.
6. What things are sold at a hardware store? What is done at a blacksmith's shop? Why were there three garages and only one blacksmith shop in the town?
7. What is meant by having horses shod? Why must they be shod? If you have seen it done, tell the class about it.
8. How would the huckster use a warehouse?
9. Make a list of all the ways by which people make a living in your neighborhood.
10. How would you like to make a living when you grow up?
11. Show the streets and stores of the town in the illustration on page 74 on the blackboard, or in sand on your sand table, or in the school yard. Put on this map the buildings that interest you most.
12. Make a map that shows your schoolhouse and several streets near it. After you have done that, show the road or street to your own home.



How many of these things have something to do with your breakfast?

THE COW AND THE DAIRY FARM

Do you know what a factory is? A man said that a cow was a kind of *living* factory. See if you can find out what he meant.

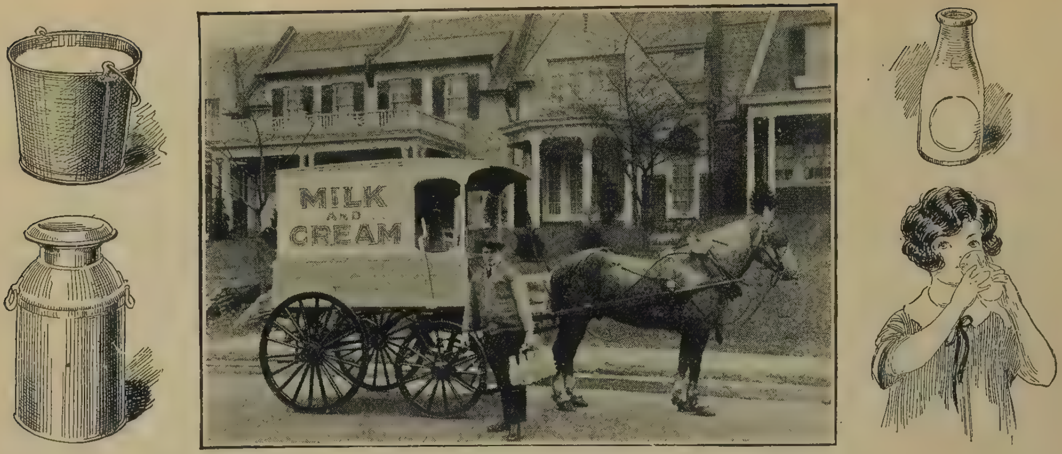
Mr. Brown now had hay for his cows and silage for his cows. But these two kinds of food were not enough. He and one of his neighbors, who also had a dairy farm, bought a car load of cottonseed meal from the South and a car load of bran from the Northwest.

Mr. Brown's cows now had four kinds of food. The hay and silage were produced on the farm. The meal and bran had come a long way by train. The cows were now ready for winter. The grass would stop growing when the frost came. The cows would not be hungry because there was no grass. Mr. Brown had provided food for them. In return the cows gave milk for the Brown family to use and more milk for Mr. Brown to sell.

Nearly all of the money that Mr. Brown earned came from selling milk. This money paid Sam's wages. It paid for the bran and the cottonseed meal. It paid for the other things the Browns needed to buy.

Nearly everything on that farm turned into milk. The grass of the pasture, the grass of the hay field, the corn and cornstalks from the corn field—all of these things were turned into milk by the big, quiet, sleepy-looking cows.

And what became of the milk?



What story do these pictures tell?

Each of the twenty cows gave eight quarts of milk every day. Most of the milk Mr. Brown sent to dealers in the city. How many quarts of milk did the city people have from Mr. Brown's cows? Milk is good food for boys and girls. It helps to make them grow. If eaten with vegetables, whole-wheat bread, or whole-corn bread, milk builds good teeth, strong muscles, and strong bones for boys and girls.

What a wonderful creature the cow is! She eats grass, hay, silage, bran, and cottonseed meal. Most of these foods we cannot eat. She turns all these rough things into milk, the food without which many children would die. The cow is certainly a friend of people.

THINGS TO THINK ABOUT

1. What do you think the man meant when he called the cow a living factory?
2. Name all the useful things you know that the cow gives to us.
3. Do you think we do as much for cows as they do for us?
4. How many uses of milk can you name?
5. Why could you not live where you do if there were no railroads? What things do you have now that you could not have if railroads, automobiles, or boats had not brought them to you?

FOR HEALTH
EAT DAILY

The calf's breakfast.

MILK
For Health
and Endurance

Picking cotton. In what part of our country is this? The little picture at the left shows cotton bolls before and after they have opened. Tell some ways in which a cotton field may be of use to Jack or Mary. How is it of use to the people who live near it?

COTTON AND COTTONSEED MEAL

After you have read this story, you may want to make a list of all the things you have which are made from cotton.

The next morning Mr. Brown hitched Roy and Dart to the wagon and went to the station to get the cottonseed meal. Joe, Jack, and Ned went with him. Jack drove. He felt very important as he held the reins. Old Roy did not think Jack was of such great importance. Roy had gone to the station so many times that he knew the way himself.

"What is cottonseed meal, Uncle John?" asked Jack, as they rode along.

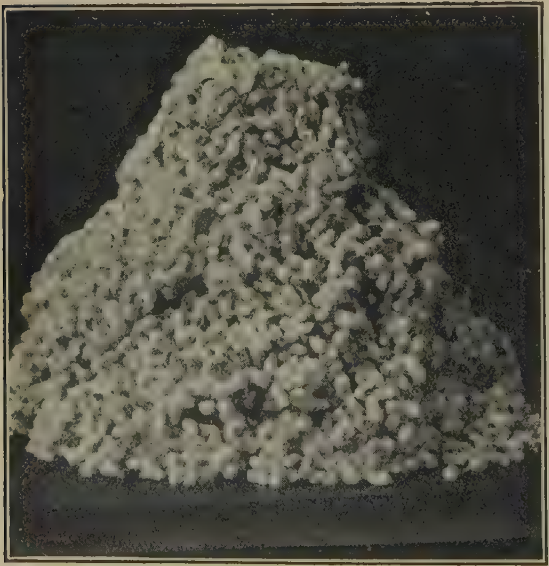
"Cottonseed meal is made from cotton seeds," replied his uncle. "A few years ago I took a trip through the South. I visited the states where cotton is grown. The weather was warm. Cotton likes warm weather while it is growing and ripening.

"The cotton plant is a small bush. Each plant has many blossoms. These blossoms ripen into seed pods that hold many little seeds covered with fluffy white cotton. The cotton is made up of tiny threads. Each thread is about half as long as Ned's little finger and about as thick as a very fine hair."

"The threads of cotton must be somewhat like Baa-baa's wool," said Joe.

"Yes, they are," replied Mr. Brown. "The cotton fibers cling to each other so that they can be twisted or spun together into long threads. The threads are woven into cloth. The cotton cloth is made into clothing

The class in agriculture is studying the cotton plants before the cotton is ripe.



Cotton seeds still covered with very short cotton fibers after a machine, called the cotton gin, has pulled the long fibers off the seed. Can you tell some uses for cotton seed?

and sold in many different parts of the world. Why, Jack, your overalls and shirt are made of cotton.

"Cotton is such an important crop that we often call that part of our country where it grows the *Cotton Belt.*"

"I studied about the Cotton Belt in our geography class at school," said Joe. "I learned that the farmers down there grow other crops besides cotton."

"They do," replied Mr. Brown. "They grow corn just as we do. The peanuts we bought in the village last Saturday night came from the Cotton Belt. So did the pine boards which Mr. Stark bought for his hen house.

Thousands of bales of cotton ready to be sent to the cotton mill. At the mill the cotton may be made into cloth. Make a list of five articles of clothing made from cotton cloth.

While the weather is still too cold here for us to start plowing, the farmers down South are growing crops of vegetables. They send these fresh vegetables to be sold in northern cities where the snow is still on the ground.

"For a very long time the cotton seeds were just thrown away. Then someone found that the seeds, if pressed, would yield an oil. This oil is called cottonseed oil. Aunt Alice buys cottonseed oil at the village store. She uses the oil in cooking and in making salad dressing.

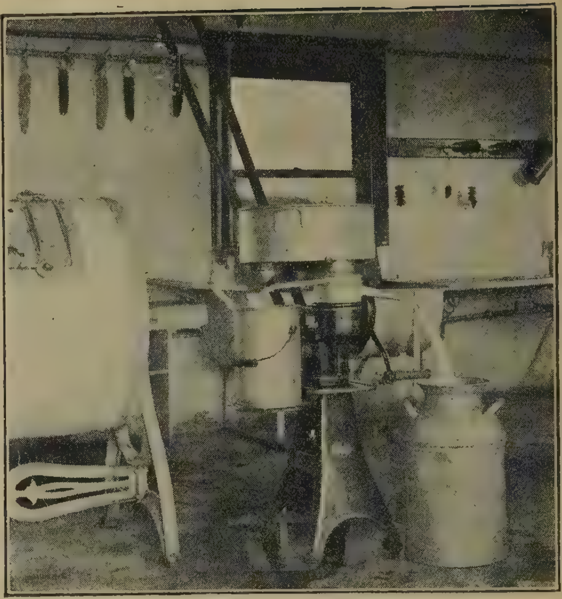
"After the oil is pressed from the seeds, there is nothing left but a hard, dry cake. This is ground to make cottonseed meal. Cows love it."

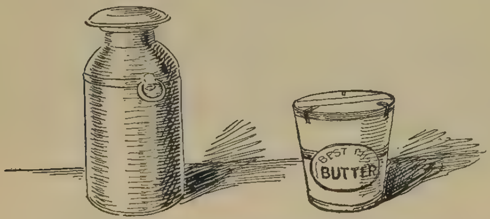
"I wonder," said Joe, "if we could not find some way to use the things which we throw away?"

THINGS TO THINK ABOUT

1. Name some things that are grown or manufactured in your neighborhood. Which of these things are used in other states and countries? Can you tell where? How do they get to these other places?
2. Find out where the food that you ate for breakfast was grown.
3. What garments that you wear are made of cotton?
4. Name as many other uses for cotton as you can think of.
5. Notice how the wires in a window screen are woven together. Take some pieces of thread and weave them together like the wire in the window screen. Perhaps you can find a picture of a hand loom.

The creamery.


The cream separator.



What story do the pictures on this page tell?

THE BUTTER FARM

Read this letter. Then tell in what ways the milk farm and the butter farm are alike.

After supper one evening Jack wrote a letter to his cousin Alfred. Alfred lived on a farm in the northern part of our country. In his letter to Alfred, Jack told about the cows, about the milking, and about his summer with the Browns. In two weeks Jack received a reply. Here is the letter from Alfred:

Dear Jack,

I was glad to get your letter. Thank you ever so much for writing to me.

I read the letter to my father. He says that he grew up on a farm, and that the farm was very much like your Uncle John's farm. But this farm where we live now is bigger than the farm on which you are living. It has no hills and no stream. All of it is level land.

My father sells three things: cream, pigs, and wheat. I will tell you about the wheat in another letter.

We keep twenty-three cows. We do not send our milk to the city as you do. There is no big city near to use it. The milk from our cows has to be turned into butter and pork so that it can travel long distances to market.

We take the milk to the creamery. That is my job. I like it. I go every morning and I see a lot of other boys who drive the other milk wagons. Sometimes we have a race to see who can get there first.

There are corn cobs on the ground here. Tell something about this pig family.

The man at the creamery pours our nice rich milk into a big tank. From the tank it runs into a little round machine shaped like a big top. The machine begins to spin like a top. It spins around thousands of times a minute. It growls as it spins. As it spins round and round, the milk runs out one spout while the cream all runs out of another spout. This machine is called a cream separator.

Then I bring our share of the skimmed milk home. We feed it to the pigs. My, how they do like it! We have fifty-seven pigs. One family of pigs, six in all, belongs to me. In the fall I shall sell them. Some of the money I shall use for spending money. The rest I shall save.

I belong to a Pig Club at school. I started with one little pig. Now my pig is a big hog. She had seven little pigs last spring. One died, but I have the other six.

After the milk wagons have all gone home, the creamery man churns his cream into butter. One day I stayed to watch him. He poured gallons and gallons of cream into a big, tight, wooden box. He fastened the lid on the box and started his engine. The box began to turn round and round slowly like a wheel. The cream inside went "slap-slosh, slap-slosh, slap-slosh."

After a while it began to go "thumpetty bump, thumpetty bump, thumpetty bump." "Thumpetty bump" told the creamery man that the butter had come. The tiny bits of butter in the cream had stuck together. They made big lumps of butter. Some were as big as your fist. Some were as big as your hat. Some were no larger than your thumb.

The creamery man pulled a plug out of the churn. The buttermilk

Churning butter by machinery and by hand; and packing butter into tubs.

all ran out. Buttermilk is what is left of the cream after the butter comes. We feed buttermilk to the pigs. Then the creamery man put water into the churn with the butter and started the engine again. That washed the buttermilk out of the butter. After this the butter was put into a butter worker. This machine rolled the butter around and squeezed all the water out of it. Then the butter worker worked salt into the butter. The creamery man took the butter out of the churn. He packed it away in a clean wooden tub called a firkin. Now the butter was ready to go to market.

Every few days the creamery man ships a car load of firkins of butter to the city. Of course, the city uses more than we send. The dairy farmers send lots of butter to the big cities for people to eat. I thought you might like to hear how your butter is made.

At the next station there is a condensed milk factory. Many of our neighbors sell their milk to that factory. All of that milk is put into cans. I suppose you have seen it in the stores marked "Condensed Milk."

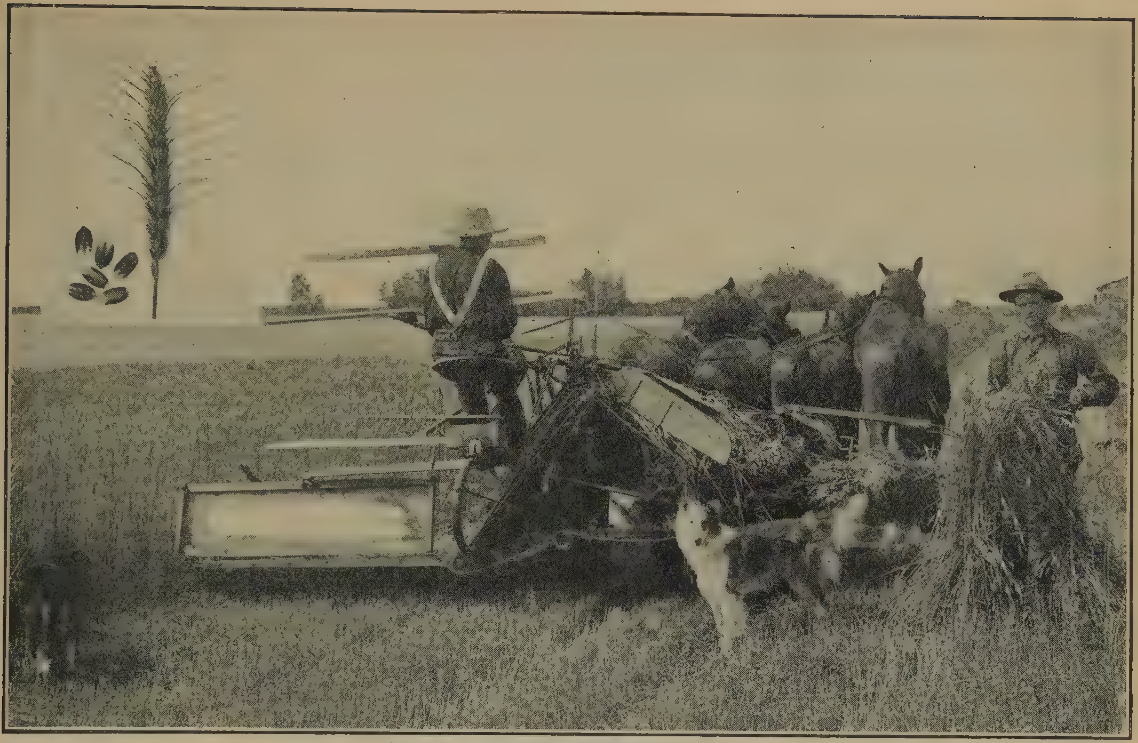
At the third station from here there is a factory that makes malted milk, and another one that makes cheese.

Well, I've written a long letter. I must stop now. I'll write again and tell you about our wheat.

Your cousin,
ALFRED

THINGS TO FIND OUT

1. Where is the butter made that is used in your neighborhood? Ask the storekeeper from what other place he gets butter.
2. How did it happen that Alfred's father kept pigs on the butter farm, while Joe's father did not keep pigs on the milk farm?
3. Why did not Alfred's father ship milk instead of butter to the city? What might have been made from his milk instead of butter?
4. Perhaps your teacher will get a half cup of cream. Let it get sour and thick. Heat it to a temperature of about 60 degrees. Put the cream into a pint glass jar, screw the top down. Shake the jar until you can see the small pieces of butter.



This is a reaper. What does it do?

THE WHEAT FARM

See if you think this letter has anything to do with something you eat.

Here is Alfred's next letter:

DEAR JACK,

I was glad to get your letter. I liked to hear about your trip to Stone Hill and to the sawmill.

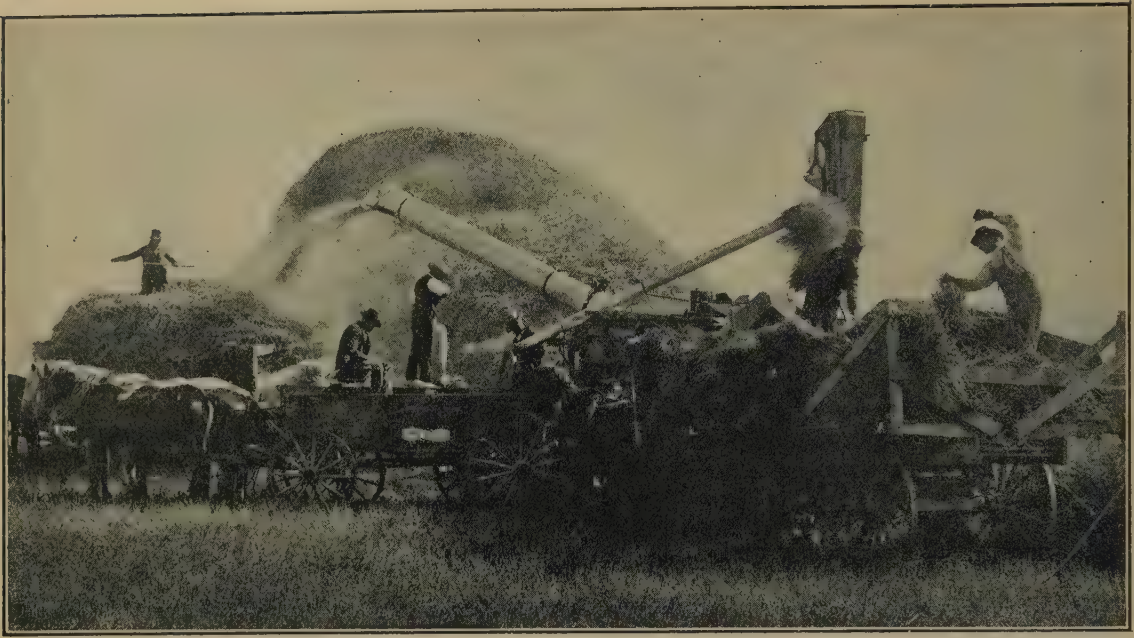
I have never seen a sawmill nor a high hill. The land all about us is flat and level. There are no stones. There are no woods.

Every year we plant a big field of wheat. When the wheat is ripe we get out the reaper. The horses pull it round and round the field. I drove the reaper some of the time this year.

The reaper has little sharp knives which cut the wheat stalks just as a mowing machine cuts hay. Then it makes the straw into bundles and ties them with string. The reaper is a wonderful machine. It carries the bundles of wheat—sheaves we call them—and drops them in piles.

Father and the men who help at harvest time set the sheaves up into shocks. After the wheat has dried out in the shocks for a few days it is ready to thresh. I like to see the thresher. It is almost as big as a trolley car. A traction engine pulls it here. The same engine runs the thresher.

A man, called the feeder, throws sheaves of wheat into the thresher. Inside the thresher are wheels with teeth on them. As the wheels turn



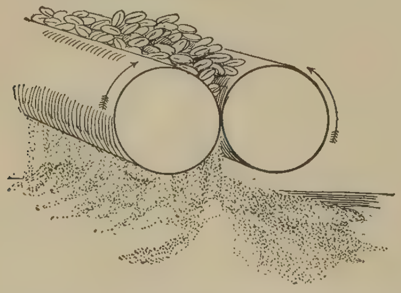
The thresher. The second man from the right is the feeder. He moved the sheaf of wheat so fast that it blurred in the picture. Can you find the sack into which the grains of wheat are running?

around, the teeth tear the bundles of wheat to pieces and knock all the wheat out of the wheat heads. The grains of wheat run out of the thresher through a little spout into sacks

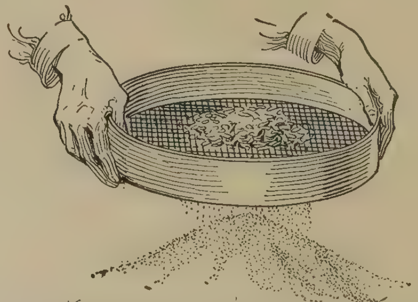
Really, Jack, that thresher seems almost human! It knows the difference between wheat and straw. As the wheat runs into the sacks, the thresher throws the straw away into a pile by itself. Don't you call that smart for a machine?

The day we thresh wheat five of father's neighbors come with their teams. They help to haul the wheat from the field to the thresher. After the wheat is threshed, we haul the grain to the railroad station.

At the station there is a building called a grain elevator. I like to help pour the wheat out of the sacks into a wooden trough or chute. Machinery lifts the grain to the top of the elevator. Then the wheat runs down into the freight cars. That is



At the mill the grains are crushed between two steel rollers.



Then a machine sifts the flour as one would do by hand

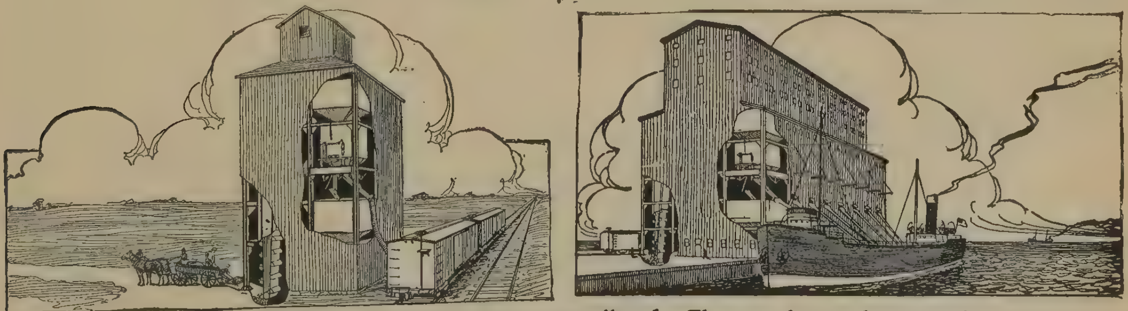
This load of wheat is on the way from the farm to the railroad station. The tall buildings are grain elevators beside the railroad track. What will happen to the wheat when it gets to the elevator?

the last we ever see of it. Away it goes to the mill to be ground into flour, then on down to the cities for you city people to eat. Father has a friend who owns a flour mill. I want to visit his mill some time and to see how flour is made. Father told me about a big bakery he saw in the city. I hope you will visit that bakery when you return home. Some of the flour you see may have been made from our wheat.

Your cousin, ALFRED

THINGS TO DO

1. Look at the flour sacks at the grocery store to see where flour is made.
2. Must wheat be sent to market and used as quickly as milk? Explain.
3. Whole-wheat flour is much better for people than white flour. Find the difference between the two kinds of flour.
4. Bring pictures that will tell a good picture story of Alfred's farm. Paste them to make a poster.
5. Name all the articles of food that might be made from things Alfred's father sold from his farm.
6. Would you rather spend the summer on Joe's father's farm or Alfred's? Why?



There are small grain elevators where the wagon meets the railroad. There are larger elevators where the railroad meets the ships. What does the ship do with the grain?

A field of rice in Cousin Susan's Southland. The plants grow in the water. The banks of earth hold the water on the fields.

THE RICE FARM

In how many ways is this farm different from the Brown farm?

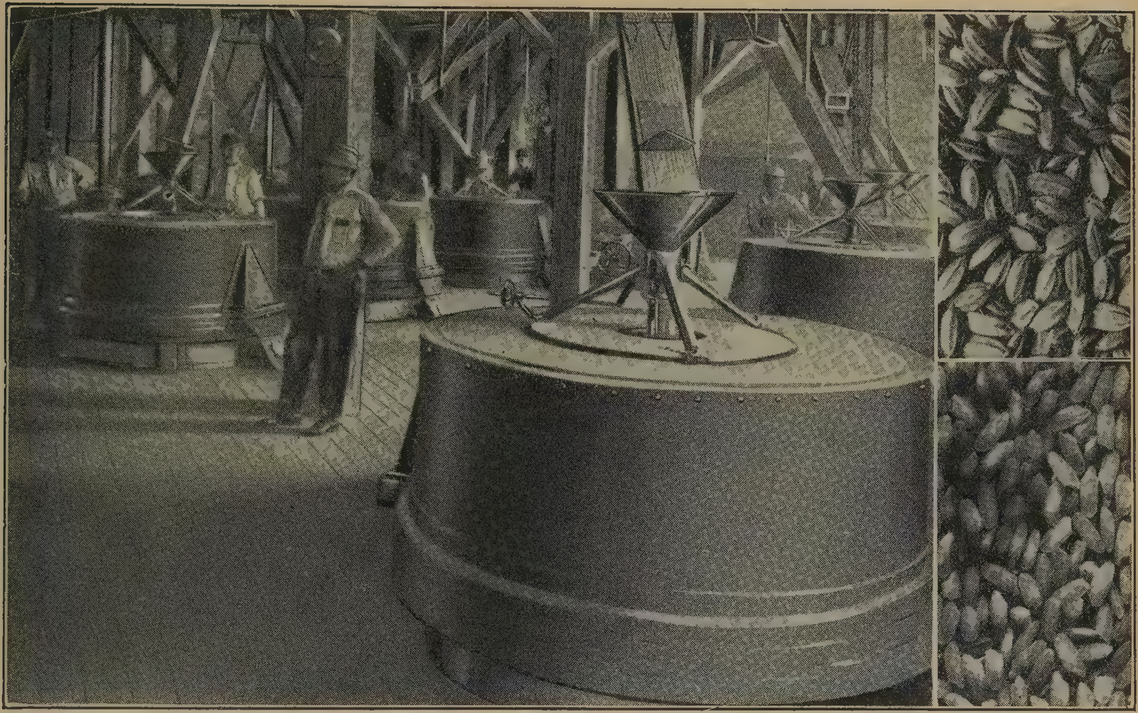
Mr. Brown was much interested in the letters. He helped the young folks to form a letter circle. Several families of cousins were in it. Each letter went to each member. Here is the letter that came back from Cousin Susan in the South after she had read Alfred's letter about the wheat farm.

"Dear Folks,

"I liked Alfred's letter about the wheat. It may be that we ate some of that wheat. The sacks of flour at our store have on them the name of a city in Alfred's state.

"We do not grow any wheat at all in our neighborhood. My father says our summer is too warm and too damp for wheat, but it is good weather for rice. I am sure you do not grow any rice at all in your state. You buy all of your rice from the store. Where do you think it comes from? I expect some of it comes from our fields. We send rice to all parts of the United States.

"As I read about your wheat, I kept thinking how much it is like our rice. We plow the earth in the same way. We harrow the earth in the same way. We plant the seed in the same way. We use a reaper and harvest it in the same way that you harvest wheat. We use a threshing machine that looks very much like the picture you sent me of the thresh-



Point in the picture to some rice with its hulls on. Point to some rice without the hulls. The big round tanks whirl round and round and tear the hulls from the rice grains.

ing machine at your place. Our machine throws the straw in a pile the same way that your threshing machine does, and we haul the grain away in sacks as you do your wheat.

"But there is one way in which rice differs very much from wheat. It grows in the water. As soon as the grain is planted, we put water on the whole field. It is only a few inches deep, but it covers the whole field. Mother says it looks like a lake.

"The first thing to do with a rice field is to build a bank all the way around it to hold water. The farmers use horses and tractors and plows and dirt scoops to build the bank.

"Then, when the rice is planted, father has to pump the water into the rice field. A creek runs through our farm. We have a big pump that lifts the water from the creek up to the rice field. A gasoline engine runs the pump. 'Poonkah,' 'Poonkah,' 'Poonkah,' 'Poonkah,' we hear it say night and day as it works away at its job of running the pump.

"There are many creeks here. The water is deep and quiet. We often catch fish. I caught one last week that weighed three pounds. Father has a motor boat. Sometimes we go to town in it. I like to go skimming along through the still water past the green trees."

SOMETHING TO THINK ABOUT

Tell how the farmers you have read about in this book might trade with each other.

Is this city or country?

THE AGRICULTURAL HIGH SCHOOL

As you read about this school, you will see that schools can help boys and girls to work better and to be happier when they grow up.

One day, near the last of August, Mrs. Brown received a letter from Jack's mother. In this letter was a copy of Jack's health record. This record had been kept by the school doctor and nurse at Jack's school in the city. His parents wanted to know how Jack was getting along, so they asked Mrs. Brown to take him to her own doctor for a thorough examination.

The doctor thumped Jack's breast and listened to his heart beat. He felt the muscles of his arm. The doctor wanted to know what Jack ate, how many hours he slept at night, whether he had had many colds, and if his throat was ever sore. He weighed him and measured his height.

"Well, boy," he said, "the country has done you good. Your muscle is hard. You have grown an inch and a half in height, and gained eight pounds in weight. You look well. See if your father and mother will let you stay here next winter and go to school in the country. It will do you good. You can go to the high school with Joe. We have a good high school."

Mrs. Brown wrote a letter to Jack's parents, telling them all that the doctor had said.

The boys jumped for joy when another letter came from New York saying that Jack could stay. He wanted to stay with his Uncle John's family and to see a winter in the country.

Joe was going to a new school this

What are these girls learning to do?

year. For eight years he had gone to the village school. It was a good school.

Joe had been a good pupil. Now he was going to the high school in the town six miles away.

Mary and Ned would miss him. They had all gone to the village school together. Ned was in the fourth grade and Mary was in the eighth grade. Next year she would be going with Joe to the high school.

The older boys and girls from many little village schools went together to this one big high school. Some went in wagons and automobiles. A few rode horses. But most of them went to school in the school bus. At twenty minutes past eight in the morning a big automobile bus came past the Brown farm. Joe and Jack got in with twenty other boys and girls. It wasn't long until the bus brought them all to their high school.

There were four hundred pupils in the school. That was a very big school for a country high school. Jack did not think that it was a big school at all. The one to which he had gone in the city had four thousand pupils.

Jack soon found that the big city school was no better than this small country school. He liked the smaller classes of the new school. He liked to go to the class which was studying farming. The teacher of this class was a bright young man who had studied farming at the State University. He liked country life and he taught his boys and girls much that would help them to have pleasant homes and successful farms.

Teaching agriculture in the field. What might the teacher of agriculture be telling the class?

There was a small orchard on the school grounds near the baseball field and tennis courts. It contained cherry, pear, apple, peach, and plum trees. The boys and girls, with their teacher of agriculture, took care of the trees and either sold or canned the fruit.

A neat, little, white, frame cottage of five rooms stood in the orchard. Here the classes in domestic science met and worked. The high-school girls took care of the house. It was a real, little home to them. They had classes in cooking and sewing. They learned how to keep house and make a home. Their teacher told them something about the kinds and combinations of foods that help to keep people strong and healthy. Mary was glad that she would soon be in high school. She would then work with her classmates in taking care of the cottage and learn to do everything that needs to be done in a good home.

It was this teacher who had helped Molly Stark with her canning.

This country high school had a machine shop where the boys learned to use tools, repair machinery, and take care of an automobile and truck.

THINGS TO THINK ABOUT

1. Name the different ways by which children go from their homes to school.
2. If you do not know how far a mile is, perhaps your teacher can help you to find some place that is just a mile from the schoolhouse.
3. How long does it take you to walk a mile?
4. What is the longest distance any child comes to your school?
5. Why is it good for a doctor to weigh and measure school children and to examine them?
6. What things in the country had made Jack stronger?
7. Perhaps your father and mother can tell you how schools have changed since they went to school.
8. Why would you like to go to the high school?

Children playing in the yard of the village school. Does your school look like this school?

THE VILLAGE AND THE CITY

Which of the places mentioned in this lesson is most like the place you know best?

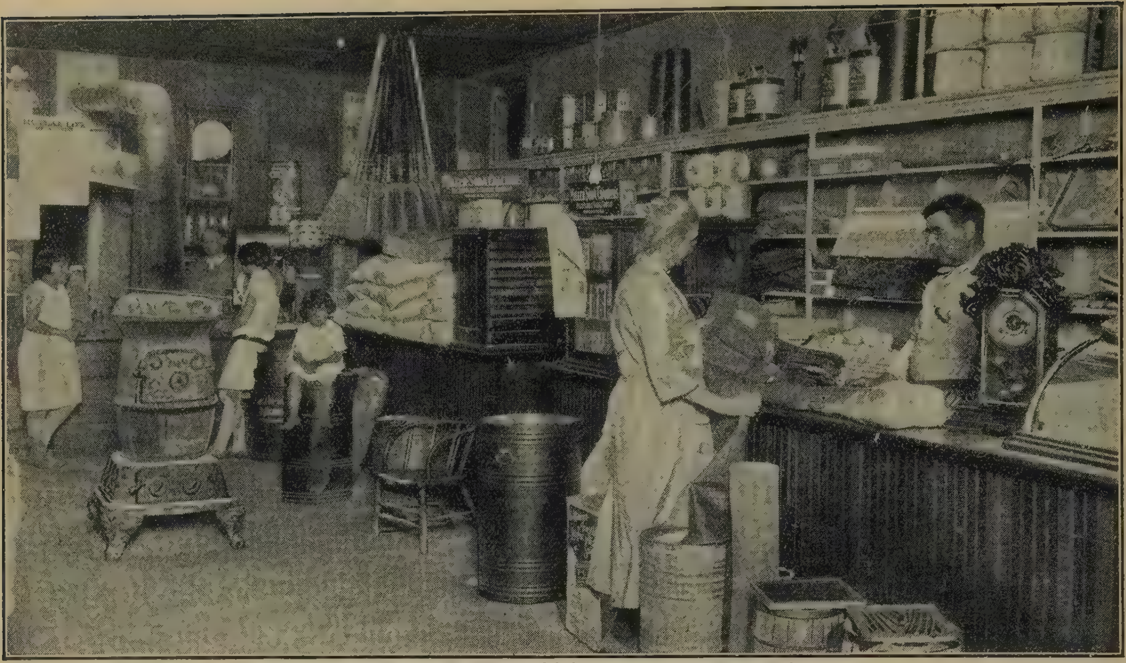
The village school where Ned and Mary went had only two rooms. There were forty-five pupils in this school. Jack thought it very queer indeed to have such a little school. But there were no more children.

The village was small. It had a general store, a post office, a railroad station, a coal and lumber yard, a feed store, a blacksmith shop, a garage, a school, a church, a doctor, and the man who mended shoes. The people who looked after these things lived in the village. There were a few other families whose men had lived on farms when they were younger. These retired farmers owned homes in the village. When every house in the village was counted there were only twenty-three.

The village was very useful to the Browns and to their neighbors. They shipped milk from the railroad station. They had their horses shod and the farm machinery mended at the blacksmith shop. They bought gasoline and had their automobile repaired at the garage. Every morning the Browns went to the village to take the milk and to do their errands. They bought something at the general store almost every day.

The country store interested Jack. He had never seen anything like it. This store sold clothing. It sold groceries. It sold farm tools and machinery.

"It seems to have a little of everything from everywhere," thought Jack. In the city Jack had to go to five or six different stores to find all the different kinds of things that were kept in that one little village store.



The village general store which sold many kinds of goods. ©

Many of the farmers drove in to the village after their day's work was done. They bought what they needed at the store.

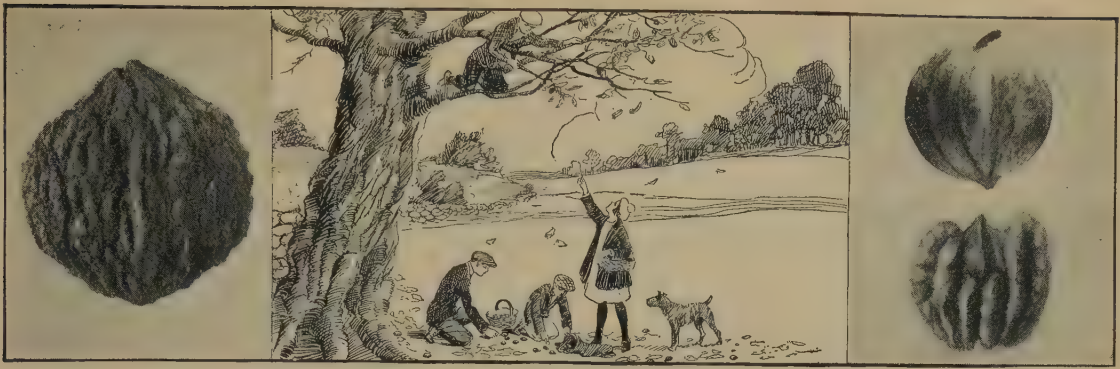
The village was very useful to the Browns, and the Browns were very useful to the village. If it had not been for the Browns and the other farmers, there would have been no village. There would have been no one to buy groceries or to ship milk or to bring things to be mended.

A great city is as useful to the village as the village was to the Browns. Nearly all of the milk, eggs, chickens, potatoes, and canned tomatoes produced on the farms were shipped from the station to the city.

Nearly everything in the stores of the village came from the big stores in some city. Neither the village nor the city could get along without the other. The city people could not live without the farmers. The farmers could not live without the city people. The village people need both the city people and the farmers.

THINGS TO THINK ABOUT

1. How did the people of the village help the farmers?
2. Name the most important stores and shops that a village should have.
3. Tell all the different things that people do near your school to make a living.
4. If you live in the country, tell how the city helps you. If you live in the city, tell how the country helps you.



Walnuts and hickory nuts. Tell about the children in the picture.

WALNUTS AND HICKORY NUTS

After you have read this story, tell how the Indians may have gathered nuts.

One morning early in October there was frost. Little white splinters of ice stuck to every green blade, every leaf, every plant in the garden. That very day the leaves on the tomatoes, beans, and other tender things in the garden withered and turned black. The leaves on the trees had already begun to turn yellow and red. Now they changed much faster. It seemed almost like a yellow and red world. The country was very beautiful for a few weeks before the leaves fell from the trees.

Nuts were ripening. The children went nutting the first Saturday after the big frost. They took baskets and sacks. They hitched old Roy to the milk wagon and drove into the pasture where there were hickory trees and three walnut trees.

The children went first to the hickory trees. On the ground beneath the trees were dead leaves. Among the dead leaves were hickory-nut hulls. The hulls had opened and let out their nuts. Hundreds of white nuts were lying among the leaves. The children cracked nuts for a while and ate the kernels. Then they began to pick up nuts from the grass.

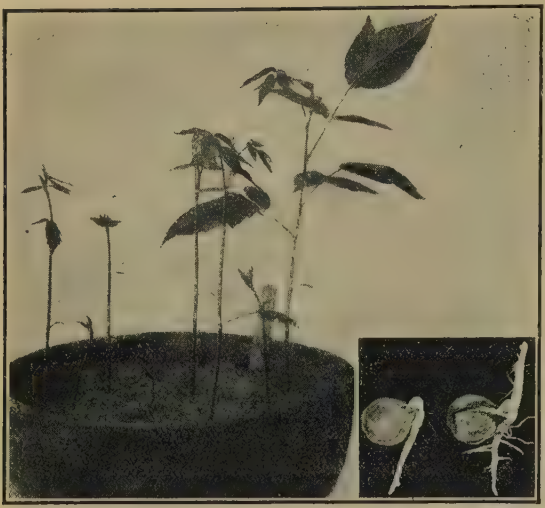
"Just look at Ned," said Mary. "He can pick up nuts as fast as anyone."

In two hours they had two bushels of hickory nuts in the sacks.

"Get up, Roy," shouted Jack, as they all climbed into the wagon and drove over to the walnut trees. Some of the walnuts still hung on the trees. The boys climbed the trees and shook off the nuts. Ned thought it was fun to hear the big, heavy walnuts go "thump, thump, thump," as they struck the ground. Once a walnut struck him on the head. He was plucky and did not cry.

The walnuts filled the sacks much faster than the hickory nuts did. Walnuts are larger than hickory nuts. The walnuts kept their thick hulls on. The hickory nuts come out of their hulls when they get ripe.

When the dinner bell rang Joe and Jack and Mary and Ned drove up to the barn with almost a wagon load of nuts.



The English walnut. First it grew a root; then it grew a stalk; then it grew some leaves.

"How can we get the walnuts out of their hulls?" asked Jack.

"That's easy," replied Joe. "After dinner I will show you."

That afternoon Joe and Jack put the walnuts through the corn sheller. This is a machine with many iron teeth. If you turn the handle of the sheller these teeth will tear all the grains of corn off the cob. As you turn the handle, the corn comes out of one hole and the cobs out at another. The corn sheller will also tear the walnut hulls loose from the walnuts, but it drops hulls and nuts all in one pile.

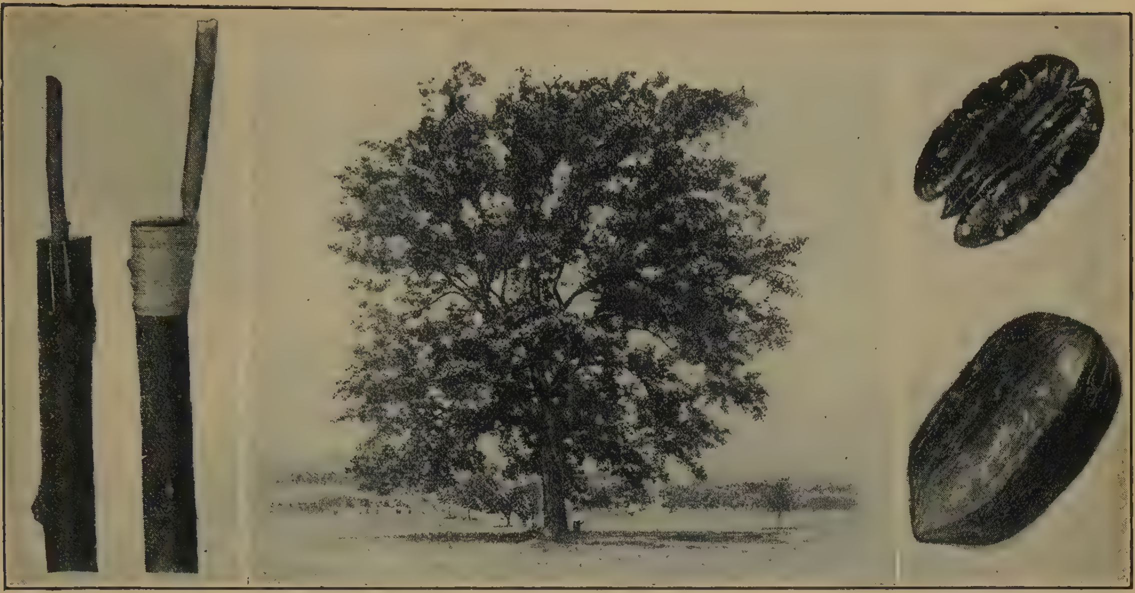
The boys had to pick the wet, black walnuts out of the pile of wet, black hulls. Their hands were almost black for a week. They did not care. Other boys at school had black hands. None of the boys had more walnuts than Jack and Joe and Ned. Before milking time they had three bushels spread out on the grass to dry. That meant a great many walnuts to eat with apples in the winter time. It meant walnut cake and candy.

One hickory tree was of a rare kind. Its kernels came out of the shells in halves. A man in the city offered five dollars a bushel for these. Mr. Brown sold one bushel, and gave the money to the children.

THINGS TO DO

1. Make a list of all the kinds of nuts that you know. Where do they grow?
2. Bring some hickory nuts and some black walnuts to class, if you can.
3. If you can get hickory nuts from different trees, look at the nuts closely and see if they are alike. Crack them and see if the kernels are exactly the same shape. Do the same with walnuts.
4. Maybe you will want to plant some nuts in a box at school or at home and watch them grow, as Jack and Joe did.
5. Would it be a good plan to plant nuts or a nut tree near your home? If your father or mother had planted one you might now be eating nuts from your tree.
6. You might write a letter to your school director or school principal asking permission for your class to plant a nut tree on the school grounds. What kind would you like to plant?
7. Tell what would happen if all your shade trees were nut trees.
8. Suppose that a boy planted four good nut trees in a yard by a farmhouse. Tell a story such as he might tell when he got to be an old man.

The artist's idea of Jack Frost.



You may point in this picture to a large pecan tree; a pecan nut; a pecan kernel. After you have read the story, you may tell about the graft shown to the left of the picture.

SUSAN'S PECAN TREE

After you have read this story, you may tell how Susan's neighbors improved on nature.

Jack had so much fun gathering nuts that he told all about it in a letter for the letter circle. Here is a part of the letter that came back from Susan in the South:

"We have walnuts and hickory nuts here too, and we also have another very fine nut. It is the pecan.

"Our neighbor has a pecan orchard. He has long rows of beautiful trees. In the autumn he sends many sacks of fine nuts to the city markets.

"These pecan trees are grafted. Grafting is a wonderful thing. We find one extra fine wild tree. Then we take twigs, or grafts, from that one fine tree and stick them into another tree in such a way that they grow. The graft grows and becomes a whole tree. In that way we can make dozens and hundreds of trees that are just like the one finest tree. I can graft trees just as well as my brother Bill. The teacher of agriculture at our high school has taught us how to graft. I have two trees that I grafted myself growing in our yard. We have one old tree that bears 200 pounds of nuts some years.

"Does your teacher of agriculture show you how to graft nut trees? Ours does, and we had boys' clubs and girls' clubs here before they had them anywhere else in the world. Nearly every pupil in our school is a member of a pig club, or a canning club, or some other farm club.

NOTE: Before anyone tries grafting nut trees north of the Cotton Belt, he should find out just how it is done by writing to The Walnut Lane Press, Swarthmore, Pa., about a book with pictures showing how to graft nut trees.

Do you think that you could find the tracks of animals in new-fallen snow like this?

THE RABBIT HUNT

If you think the Indians ever did anything like this, tell about it.

One Saturday morning in late November the ground was covered with a light fall of snow, just a little snow.

"Hurrah!" cried Joe. "Hurrah for the rabbit hunt! Come on, Jack! Come on, Ned! Here, Nipper! Here, Nipper!"

Away they all went to the far pasture field, with Nipper jumping for joy and straining at the rope in Joe's hand.

"Look," cried Joe, pointing to rabbit tracks in the snow. "Here is his trail. See! Here he went hoppity, hoppity, hop."

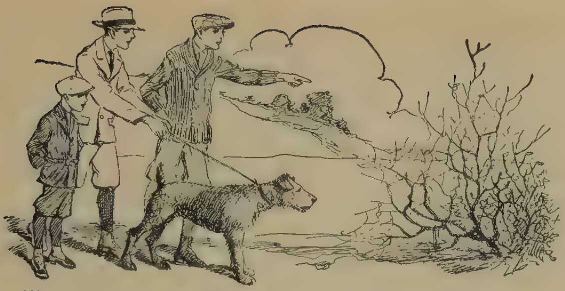
The boys followed the trail across the pasture into Farmer Stark's field and back again into their own pasture. There the trail went into a clump of bushes and did not come out.

Nipper was smelling at the rabbit tracks. Joe untied the rope that held him. Nipper jumped into the bushes and out jumped the rabbit, making about five feet at a jump. Away they went, Nipper chasing the rabbit and barking as though forty people were stepping on his tail.

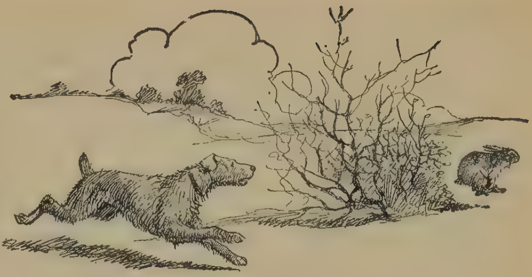
Over the hill went the rabbit and dog—over the hill and out of sight into a neighbor's field.

"Come on, Joe," said Jack as he started to follow Nipper. But Joe said "No," and stood still. The barking got fainter and fainter. Jack said they *must* follow or they would lose Nipper and the rabbit. But still Joe would not go. Then a strange thing happened. The barking began to get louder and still louder. It was not in the place where the sound had first been.

The rabbit had not been running away from his home in a straight



"Let me go, Joe, there is a rabbit in the bush."



Nipper chases the rabbit.

line. He had been running on a curve. He had made a wide circle. This brought him around near his home. That is the way rabbits do. If only they can run in a circle and get back home, they feel safe. Joe knew this. That is why he had waited instead of running after Nipper as Jack wanted to do.

The barking came nearer and nearer. The rabbit jumped through the fence into the pasture field. Nipper jumped over the fence and almost landed on the rabbit. It looked as though Nipper would have that rabbit at the next jump. But no, just as Nipper opened his mouth to take the rabbit, the rabbit darted to one side so quickly that he was several feet ahead before Nipper could turn and get going again.

That gave Mr. Bunny just time enough to dive into a hole in the ground. It was the very same hole that the ground hog had gone into the summer before. The rabbit did not care if the hole was not his own. It helped him out of a lot of trouble.

Nipper barked at the hole a minute. Then he hung his head. He remembered something and looked very sad. He remembered the summer day that he had tried to dig the ground hog out of that hole. So did Joe. They all went on to the next field hoping for better luck, as hunters always do.

They did have better luck. Nipper caught two rabbits before noon.

THINGS TO THINK ABOUT

1. (*a*) Why do you think Mr. Rabbit was glad to see the ground covered with snow? (*b*) Why do you think Mary and the boys were glad to see the ground covered with snow? (*c*) Why do you think Mr. Brown was glad to see the ground covered with snow? (*d*) Have you ever seen the ground covered with snow? Tell about it if you have.
2. Try to find pictures of animal tracks.
3. Why do you not know as many animal tracks as Indian boys and girls of your age know?
4. Tell how some animals other than rabbits get away from their enemies?
5. What animals should we protect?
6. What animals should we destroy?
7. Ask your teacher to read some stories to you from a book called *Br'er Rabbit*, by Joel Chandler Harris.

The boys follow the rabbit's trail.

Did Nipper catch the rabbit?

This is a blizzard. The postman drives through the snow to deliver the mail.

THE BLIZZARD

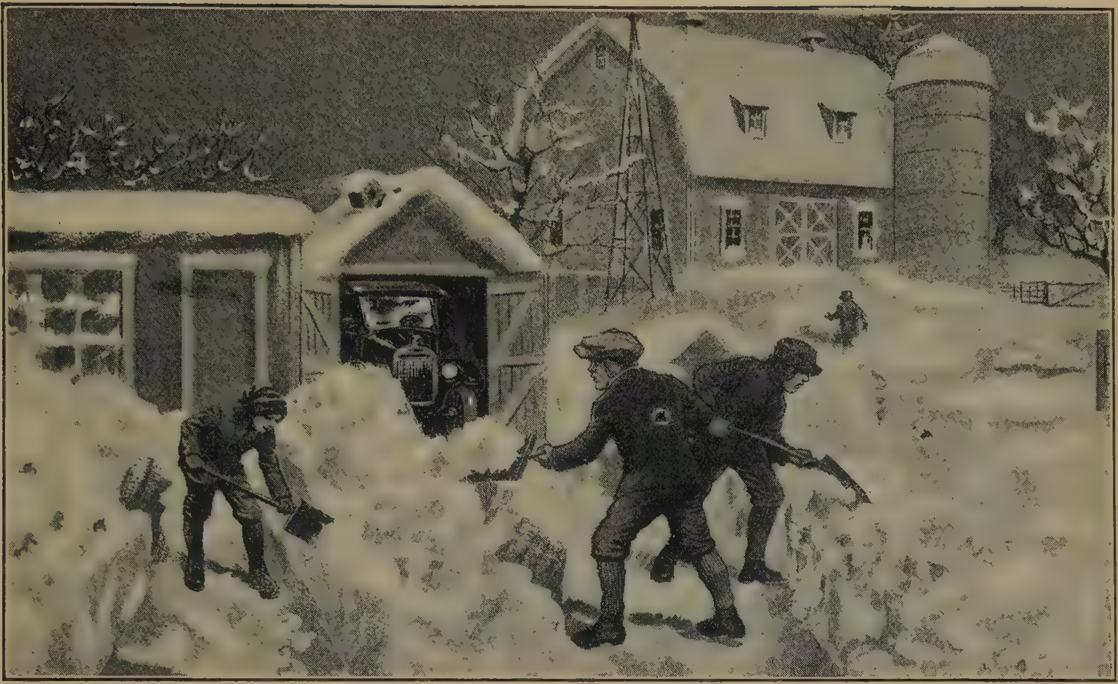
If you want to get an idea of how the water that is in the air is changed into little pieces of ice called snow crystals, do either or both of these things:

1. Put two or three spoonfuls of salt into a glass of water. Stir it well. Wet a string in the water. Tie it up so that one end is in the water. Look at it carefully the next day. Tell what you see.
2. Put a piece of ice in a tin cup. Put some salt on the ice. Watch the outside of the cup.

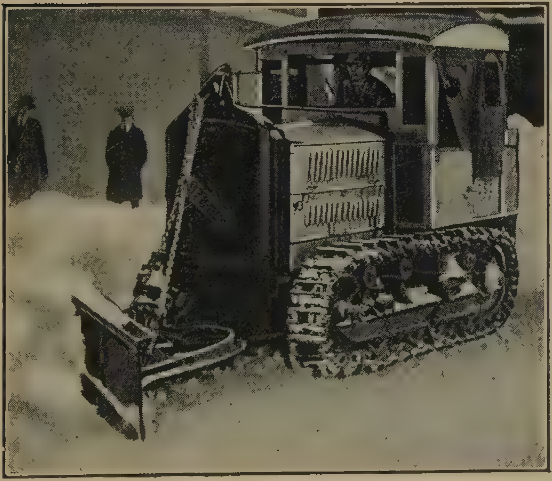
Snow fell again one afternoon in December. It was snowing after supper. At bedtime the boys went out on the porch to see if snow was still falling. The little white feathers were dropping quietly out of the cold air. It snowed all night long. In the morning the soft, fresh snow was knee deep.

About daylight the wind began to blow. It caught up the light snow and flung it about in clouds. The boys could see nothing but flying snow as they looked out of their bedroom window. The wind blew the snow into drifts. More snow kept falling. All day the wind blew. All day the snow flew. This was a blizzard. The drifts got higher and higher. The school bus did not come that morning. It could not get through the deep snow. In places the drifts across the road were too deep for any automobile. Nothing passed along the road.

Sam took the milk to the station. He let down fences. He drove old Roy around through the fields where there were no drifts. But the milk train did not come that morning. The tracks were piled high with snow.



After the blizzard the boys shoveled a path to the garage and to the chicken house.



In the city snowplows are used to clean the snow from the streets.

The train could not get through. Sam had to bring the milk home again.

The next morning the snow had stopped falling. The sun was bright. The wind was still blowing. The snow was still flying a little. Jack was sure he had never felt such a cold day. The snow cut his face.

Snowdrifts reached across the road in many places. Some of them were as high as Mr. Brown's head. Every farmer in the neighborhood worked on the road that day. The farmers always joined together and opened the roads after a big snow. With shovels they dug gaps in the drifts so that the horses and wagons could get through. The horses' feet and the wagon wheels tramped and mashed the snow down so that automobiles could get along.

As Jack shoveled snow with the other boys, he wondered if the people in the city got some of the blizzard. How they did work when the snow fell! Hundreds of men came

Loading snow on trucks in a big city. This machine runs on a tractor. At the right of picture it scoops snow up from the street. Then a belt carries the snow up and drops it into the truck.

with shovels and big trucks. They shoveled the snow onto the trucks. The trucks dumped the snow into the river. Jack remembered that the piles of snow in the city were dirty. He noticed that the country snow was clean and white.

Two days passed before the school bus could get through to take the children to school.

"Blizzards can't keep me from school when I am home," thought Jack. "I live just around the corner from the school. I dress as warmly as the boy in the picture does and I have great fun in the deep snow."

THINGS TO THINK ABOUT

1. What makes a snowdrift? Why were there no drifts in the open fields through which Sam drove?

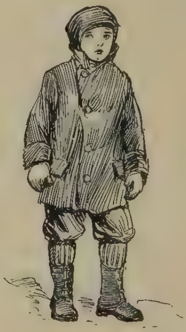
2. Tell ways in which snow helps us? How does it bother us?

3. Who pays for cleaning snow off city streets? trolley-car tracks? railroad tracks.

4. Pretend you were riding with the postman. (Page 100.) Tell about your sleigh ride through the blizzard.

5. Make a daily record of the weather where you live. Use a chart like this:

Date	Day of Week	Temperature	Clear	Cloudy	Rain or Snow



Pitching horseshoes in the Southland in winter time.

An orange tree with ripe fruit.

LETTERS FROM THE SOUTH AND THE WEST

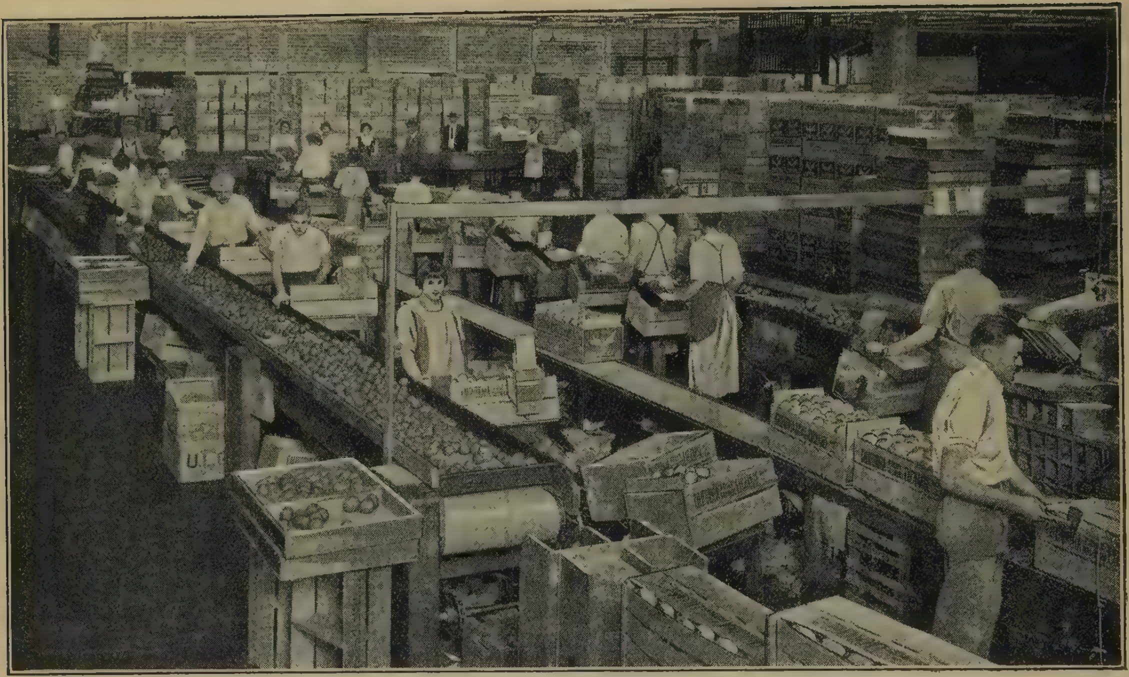
If you know of two places, one of which has snow while the other is warm and has growing gardens, tell about them.

The first day that the boys were able to get to the school after the blizzard, one of the teachers read a letter to the class. The letter was from her father. He had rented his farm in the snow belt and with his wife had gone to spend the winter in the warmer South. They had driven all the way in their car. Here is the letter the teacher's father wrote:

DEAR FLORENCE,

I suppose you are not at school today. Everybody in the neighborhood must be out shoveling snow. I have just read my morning paper. What a blizzard you must have had! The paper said that trolley lines were tied up, that very few trains were getting into the city, that the milk supply was running low, and that thousands of men were shoveling snow and repairing telephone and telegraph wires. Your mother and I can hardly imagine what a blizzard feels like.

Down here the trees are green. Gardens are growing. Flowers are in bloom. This morning your mother and I took a ride. The weather was warm as a pleasant day in June. The thermometer read 75 degrees. We stopped at a farm and bought some grapefruit and oranges from a man who was picking them off his own trees. The orange groves are


Oranges being sorted, wrapped, and boxed for shipment to you and to me.

very beautiful. As we drove along, we saw strawberry patches and fields of celery, lettuce, potatoes, and other vegetables.

Then we went over to the beach and went in bathing. The water was smooth and warm. I had a fine swim.

When I read about your blizzard, I can hardly believe that you and I are in the same country. I tell you, Florence, you are in a good place this winter if you want to go coasting and shovel snow. But this is the best place for your mother and me to spend the winter. We are going to stay right here until your snow is all gone. Then we will load up old "Chuggy" and start home in time to plant the garden.

I am wearing my straw hat to keep off the hot sun. Your mother is wearing a white dress today. You are not doing that, are you, Florence? I do hope you are careful to wear a sweater under your coat when you go to school.

With much love,

Your Father

"Miss Florence, Miss Florence," said an excited boy who was holding up his hand in the back of the room.

"Well, Alfred, what is it?"

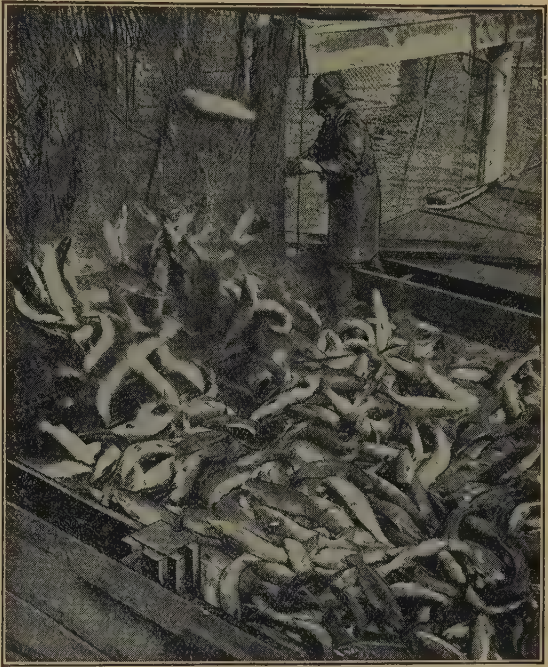
"Yesterday we got a letter from my aunt. She is taking a trip to the Pacific coast. She tells about green grass and flowers and oranges and walnuts and vegetables. She says she saw a tree that was so big that an automobile drove through a hole in it. She likes to get up on the mountains and look down on the farms and houses and fields and orchards. Once she saw people making moving pictures in the mountains. She says the Pacific Coast is a very wonderful place to visit. She can hardly believe we are having snow."

Then Mollie Stark raised her hand. "My aunt lives in the northwest corner of the United States," she said. "Sometimes she has roses at Christmas time. They don't have snow very often."

"Yes," said Miss Florence, "that part of our country has a rather warm winter, too. But it is not as warm as the part where oranges grow."

"Mollie," asked her teacher, "can you tell the class something more about our great Northwest?"

"I remember some of the things about which my aunt wrote," replied Mollie. "She said that the farmers there grow much wheat and many kinds of fruit. Some of their big, red apples go all the way to New York. There are many forests and lumber mills in the Northwest, too. There are also many salmon canneries. My aunt said, 'The next time your mother buys a can of salmon look at the label to see where the fish was canned.' "

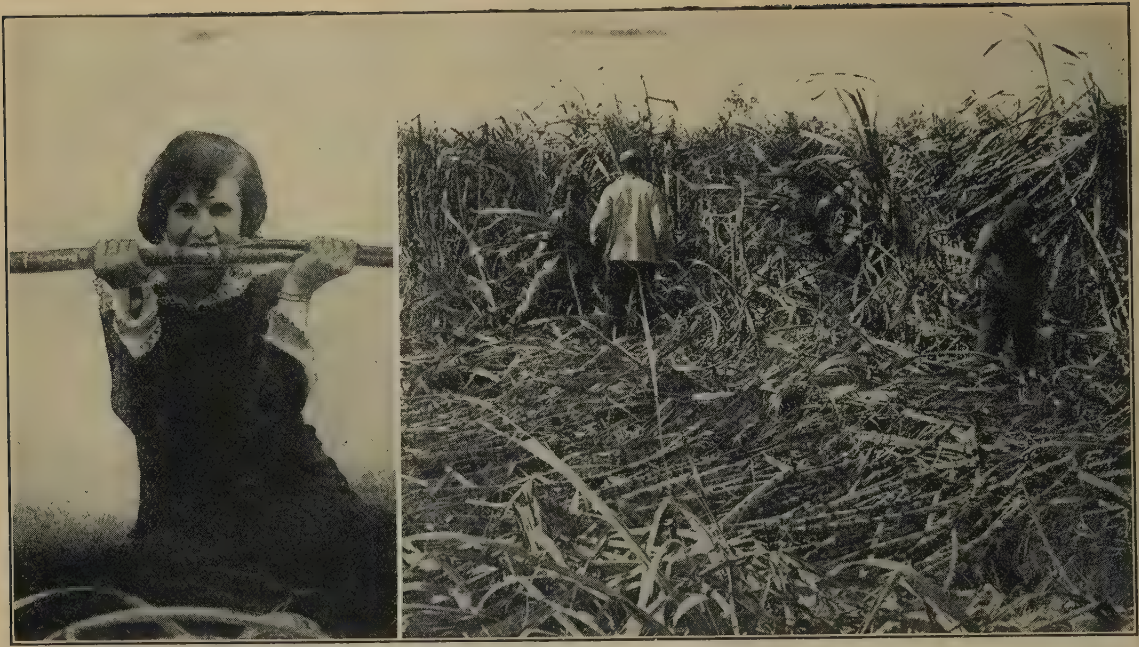


Dumping salmon into a boat from a large fishing net.

THINGS TO THINK ABOUT

1. Would you rather live in a warm or a cold part of the United States? Which would be cheaper?
2. Perhaps you can bring to class some pictures of different kinds of winter scenes in different parts of the United States.
3. Then you may tell what people might be doing in the place where the picture was taken.
4. How would life on the Brown farm be changed if the farm were in the warm South?
5. Tell where the oranges, which are sold in your neighborhood, were grown.

Automobile campers resting in the forest after a long day's drive.



Cutting sugar cane on a plantation near the Gulf of Mexico. After you have read this story, tell what the girl is doing in the left-hand picture. What crop have you seen that looks like the right-hand picture?

SUSAN VISITS THE SUGAR PLANTATION

As you read this story, think of the different ways in which the sugar plantation is of use to you.

That evening, when the boys got home from school, they found another letter for the letter circle. Susan had been taking a trip and she was telling the other members of the circle what she had seen.

"I have traveled more than 100 miles. I am visiting my cousin, who lives on a sugar plantation not far from the Gulf of Mexico.

"Sugar cane looks much as cornstalks would look if they had no ears of corn and no bloom or tassel at the top. (See page 52.) The stalks of sugar cane are thicker and fatter than cornstalks. They are full of sweet juice.

"The people here use sugar cane for candy. I see boys and girls every day walking about with pieces of sugar cane in their hands. Every little while they bite off a piece and chew it to get the sweet juice. Over in the factory, sugar is made from this sweet juice of the cane.

"Growing sugar cane seems very much like what you wrote to us about growing corn. They plow the field for cane as you do for corn. They cultivate the young cane as you cultivate corn. They haul it to the factory as you haul corn to the silo.

"There is one difference, though. With corn, you plant the seed and the seed sprouts. With sugar cane, they plant pieces of the cane. These pieces of cane sprout and send up new plants.

"There is another difference. The

Back of the sugar plantation is a swamp. Tall trees stand on the marshy ground.

sugar mill is not at all like your silo. If you should see a sugar mill, you would think your silage cutter was a very small and simple little box indeed.

"The sugar mill is several times as big as any barn I ever saw. It has an engine that is bigger than a locomotive. It has a tall smokestack. There are ever so many kinds of machinery in the mill. A sugar mill is so big that dozens of men work in it. It takes several farms of sugar cane, each as big as the Brown farm, to keep the mill going.

"The men who unload the cane throw it into a trough five or six feet wide. The bottom of this trough moves. It carries the piles of cane up to the crusher. This crusher squeezes the cane between rollers. These rollers are heavy logs of steel more than a foot thick. They are strong enough to crack stones. They squeeze the juice out of the cane.

"After this the juice is run through pipes and vats, boilers and whirlers, purifiers and dryers, until it comes out at the other end of the factory, as sacks of nice brown sugar.

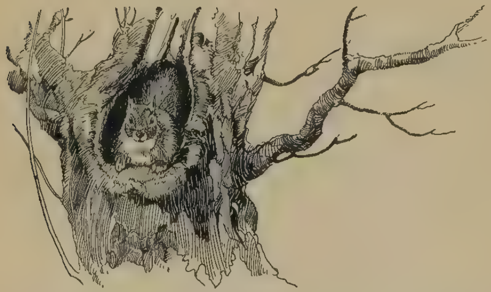
"A wide river with steamboats on it goes along in front of the sugar plantation. Back of the plantation is a great swamp where tall trees stand in the water."

"Well," said Jack, "this is a big country. Here we are in snowdrifts up to our necks, and at the same time sugar mills are running down near the Gulf of Mexico and oranges are growing way out West."

THINGS TO THINK ABOUT

1. Tell how sugar cane is like corn and how it is unlike corn.
2. Why is the sugar plantation larger than the Brown farm?

Winter work in a wood lot on a farm. Is there a sled here?



Tell why Mr. Squirrel did not like the firewood business.

CUTTING THE FIREWOOD

This story has two parts. When you have read it, finish these two sentences.

The first part of this story tells about ——.

The second part of this story tells about ——.

After the blizzard snow had settled down a little, Mr. Brown and Sam began to think about cutting more firewood. The Browns' house was kept warm by wood fires in stoves.

At the end of the far pasture was a woods. The trees grew on a steep, stony hill. This land was too steep and too stony to make a good field. Mr. Brown kept it for his wood lot. He was careful to cut only the oldest trees. The young ones he left to grow bigger.

Last year Mr. Brown and Sam had cut down two old trees. They sawed the trunks and branches into small logs. They split the logs. They left the piles of split logs in the woods. Soon the sap in the logs dried. The wood became lighter. It burned more easily in the stoves than green wood freshly cut from the trees.

Even when they had enough wood in the wood shed to last a year, they cut a few more trees so that the wood would have time to get dry.

The Saturday after the blizzard, Mr. Brown and the boys sawed wood in the wood lot.

Mr. Brown showed Jack and Joe the right way to pull a cross-cut saw. They were surprised to see how easily

The farmer will split some of these logs with his keen-edged ax.

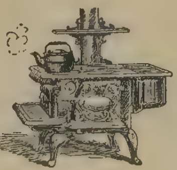
they could saw a tree trunk in two. They were surprised to see how easily they could split the logs with the keen-edged ax.

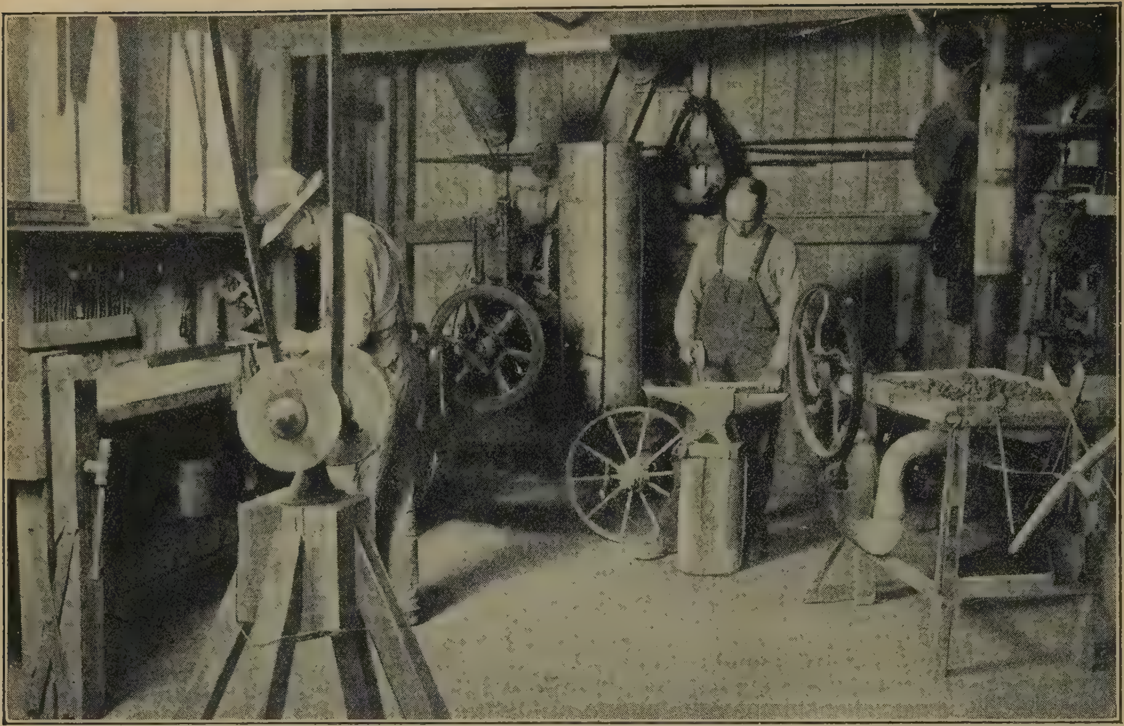
One old tree was hollow. When it fell, two squirrels ran out of a hole in the log and climbed up another tree. When the hollow log was split, Joe found a cozy, warm nest made of soft, fine threads of inner bark of the dead tree. The nest was almost as soft and warm as cotton.

The squirrels also had a lot of hickory nuts stored in the hollow log. A lot of the shells were empty. The squirrels had cracked them and had eaten the kernels. The boys were careful to leave the nuts, for Mr. and Mrs. Squirrel needed something to eat. When the wood sawyers came back after dinner, the squirrels were busily carrying the nuts to a hole in another tree. Mr. Brown promised the boys that he would not cut that tree.

THINGS TO THINK ABOUT

1. Why is cutting and hauling wood good winter work on the farm?
2. Why is it cheaper for Mr. Brown to burn wood than to burn coal?
3. Why does Mr. Brown need a large wood lot? How could he get fuel if he had no wood lot?
4. What we use in making a fire is called fuel. How does our fuel get to our houses?
5. Make a simple map showing how fuel travels on its way to your schoolhouse.
6. Is fuel one of the groups of things which everyone needs whether he lives in the North or in the South?
7. When our country was first settled, our people spent more time cutting wood than they do now. Can you tell why?
8. Pretend that you were the squirrel in the hollow tree. Tell a story about how you made your home and took care of your family.





The machine shop in the town to which Mr. Brown took the things he could not repair himself.

THE FARM MACHINERY

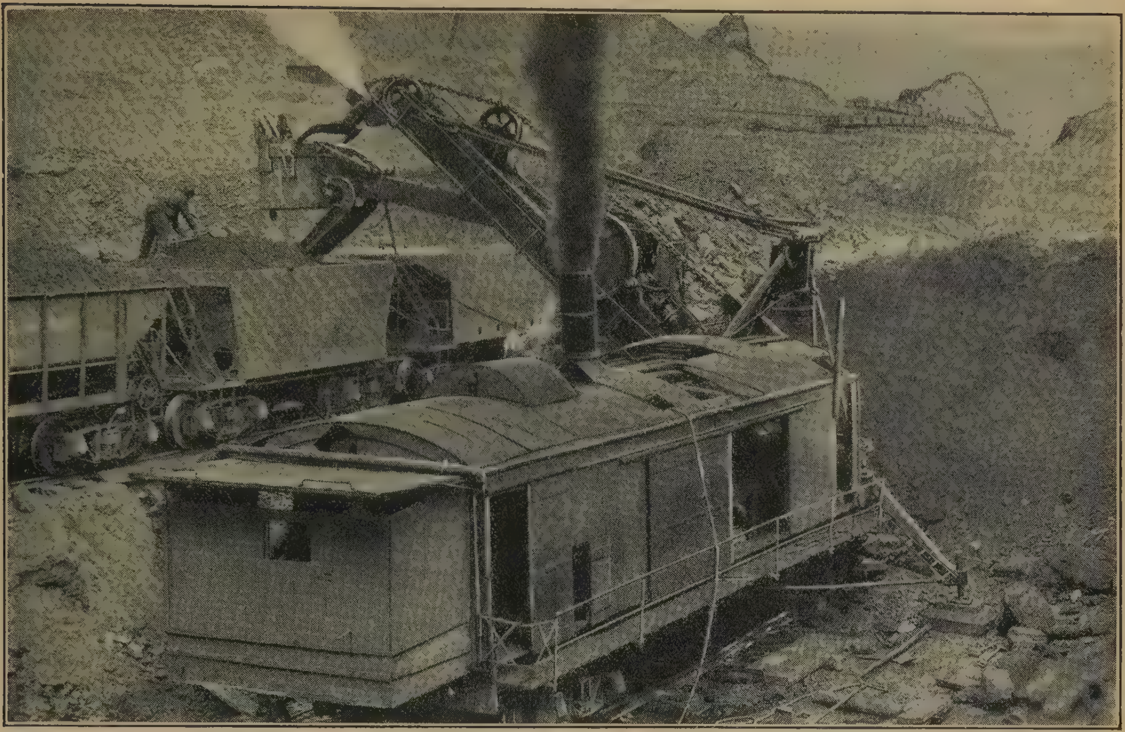
There is an old saying that "a stitch in time saves nine." See if anything in this story reminds you of that saying.

After the firewood had been cut and stacked in the woodshed, there was not much work for Mr. Brown and Sam to do out of doors. There is not much work that farmers can do while the ground is frozen and covered with snow. This gives the farmer a chance to put the farm machinery and tools in order.

Mr. Brown had a workshop with a stove in it. Here he and Sam made new ax handles and pick handles. They sharpened the saws. They put new bolts in the plows. They tried to get all the farm tools in good order for the spring work.

Sam mended the harness while Mr. Brown gave the car a good overhauling. Mr. Brown was handy with machinery. He took that automobile apart. He found that some of the parts were worn. He put in several new parts so that the old car was almost as good as new. Some of Mr. Brown's neighbors wondered why he could get more work done in the summer time than they could. But these people did not use the winter time to put their machines in good order. When the spring work began they often had to stop farm work to repair the machinery. That gave the weeds a chance to start growing.

Sam thought he knew even more than Mr. Brown about repairing the car and the farm machinery.



The big box near the man is a shovel. The black stuff in the car is iron ore. The shovel has let down its little door and dropped the ore into the car. The shovel is worked by a steam engine in the car. The smoke shows where the engine is.

"I used to help make automobiles!" he would say. "A few years ago I had a job in an iron mine. I mined iron for automobiles."

"Did you like to work down in the mine?" asked Jack.

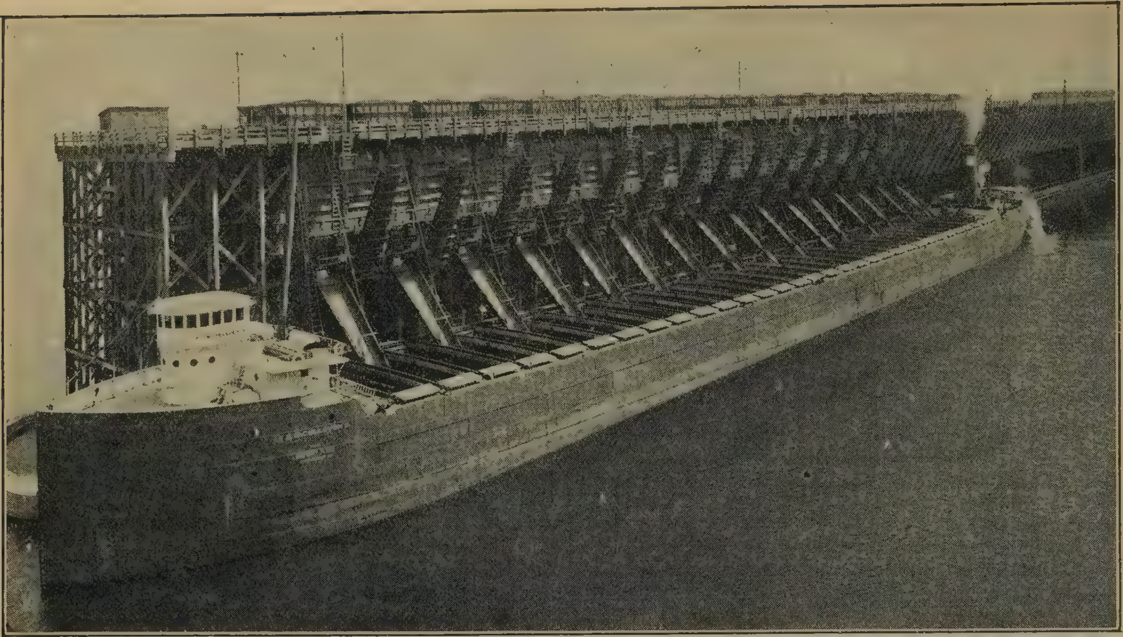
"I have never been down in a mine," replied Sam. "These iron mines are on top of the ground. They are mountains of iron ore. I ran a steam shovel. The shovel was shaped something like a bucket, and you just ought to see how I made that old shovel work. When I pulled a lever, the shovel would swing around and dig into the bank. It could lift tons of iron. I would pull another lever and swing the load around until it was right over a freight car. Then I would touch another handle and the bottom of the bucket would open. Crash! The whole load of ore would fall into the car."

"I'll bet that was fun," said Jack. "Did the iron go right to the automobile factory?"

"Oh, no! Not at first. We do not dig pure iron. The iron in the mine is mixed with earth and other things. This mixture is called iron ore. The iron ore has to be purified in a furnace before you can use it." Jack was interested in what Sam had told him.

"Uncle John, what does an iron furnace look like?"

"Well," said Mr. Brown, "it looks something like a fat, round stack.



Can you find the smokestack of this very long steamboat? The boat carries iron ore on a large lake. The cars at the top of the picture carry ore to the boat. The ore drops through the bottom of the cars and runs through the spouts into the boat.

The one I saw was higher than our barn. It was kept full of fire. The iron ore and fuel are dumped into the top of the furnace. Fire melts the iron ore. If there is limestone in the furnace, the iron melts more easily. For that reason they dump fuel, iron ore, and limestone into the furnace. The melted iron is heavy. It runs down to the bottom of the furnace. The limestone and ashes and dirt in the iron ore are all melted together. This waste is called slag. Slag is lighter than iron, so it floats on top as cream does on milk. There are two little doors in the bottom of the furnace. The slag runs out of the higher door. Then the lower door is opened and the white-hot melted iron runs out of it."

"Does the melted iron burn the man who opens the door?" asked Jack.

"Not if he is careful," said Uncle John. "The melted iron runs into troughs that have been made in the floor and covered with sand. The iron cools on the sanded floor.

"Even yet the metal is not ready for the automobile factory. Most of the iron used in automobiles is first made into steel. Steel is iron that has been made very hard and strong."

Jack remembered reading in a magazine that iron is the most useful metal in the world. He tried to think of things that are made of steel, such as railroad tracks, bridges, big buildings, ships. Even little things such as pins and needles are made from steel. And steel is made from iron.

"Uncle," asked Jack, "did you ever see steel being made into automobiles?"

"Yes. Once I went to a city where there are many automobile factories. I went through one of these factories."

"What did you see?" asked Jack.

"Thousands of men at work making parts for automobiles. In another place I saw long rows of men putting the parts together to make cars."

"There are many tire factories in that part of the country, too," said Uncle John. "I wonder where the rubber comes from?"

"My father told me about that," said Jack. "He said that rubber does not grow anywhere in our country. Rubber comes from the gum of a tree that grows in countries where the weather is wet and warm all the year. We buy our rubber from those countries. Much of it comes in ships to our port cities."

"It does take a heap of work to make one automobile," said Sam, as he walked away to milk the cows.

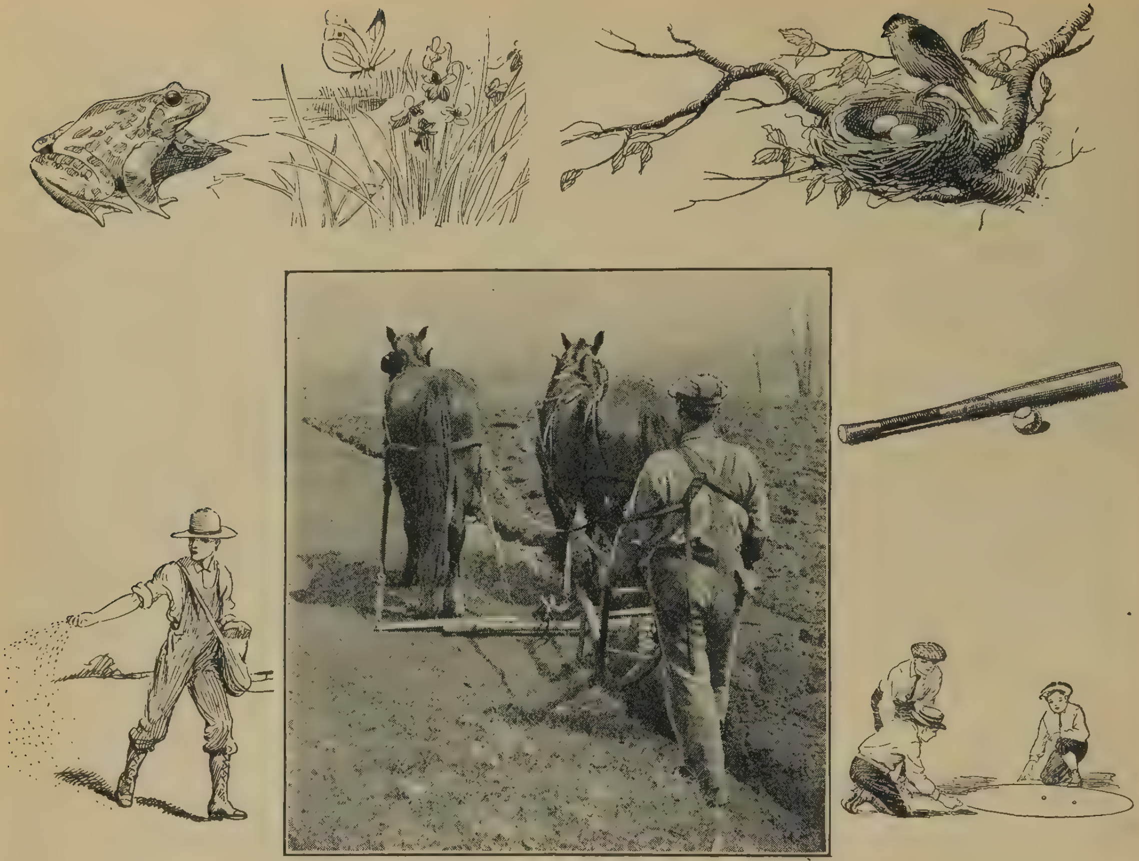
"Yes," said Mr. Brown, "a lot of work is necessary to make an automobile, but it is a wonderful machine when it is finished. It takes a big automobile to weigh as much as two horses, but the automobile has the power of twenty or thirty horses. The horses can go only thirty or forty miles in a day. The automobile can go that far in an hour, if the road is good and if there are few vehicles on it. The automobile shows us why people sometimes call this age an age of machinery. I could scarcely run my farm without the automobile."

Making rubber tires for automobiles.

"Yes," said Jack, "your automobile runs faster than old Roy, but I would like to know what your car would have done in that knee-deep mud the other day. Horses can do some things that automobiles cannot do."

THINGS TO THINK ABOUT

1. What things are done at your home that might be called "stitches in time"?
2. Railroads, steamships, and airplanes need to have "stitches in time." Tell about one of these stitches.
3. How many different kinds of farm machinery have you seen? How many can you name?
4. If possible, go to a farm and see how many different machines there are on that one farm.
5. Cut out pictures of farm machinery. Perhaps you can paste the pictures so that they will tell a farm story.
6. Pretend that your schoolroom is Mr. Brown's shop. Make a little play of this story. Be sure to use the words "stitch in time" in your play.
7. Name all the different things that must be done before an automobile is finished.



Tell how each of these pictures makes you think of spring.

SPRING COMES

As you read this story you can be thinking of something that is done in each of the four seasons of the year.

In March the sun was much brighter than in winter. The days were longer. The snow turned into pools of water. The ground was wet. Mud was everywhere.

Half of the road to the high school was only a dirt road. At snow-melting time it became very muddy. One evening the school bus stuck in the mud and could not get out. That evening Jack and Joe and eighteen other boys and girls had to walk three or four miles to get to their homes. Mary lost one of her overshoes in the mud.

In a few more weeks the ground dried and there were many signs of spring. The grass was green. The wild flowers bloomed. The birds came back from the South and began to build nests. The frogs piped loudly in ponds and streams. Buds on the trees began to swell and burst into young leaves. The bees hummed in the fields and trees. The fruit trees were in full bloom. Apple and cherry trees became like large bouquets of flowers.

The machine at the right crushes clods or lumps of earth, and makes the ground ready for planting. The machine at the left plants a row of corn under each wheel.

The boys began to spin tops and to play baseball. The girls jumped rope and wore the bright-colored new dresses which they had made in the sewing class. The farmers were plowing their fields and planting their gardens. Everyone in the country was hurrying and working early and late. A new year of growth and busy work had begun.

The boys began to go about the woods and pastures. One morning they happened to find a nest of young rabbits. It was lined with fur from Mrs. Rabbit's own body.

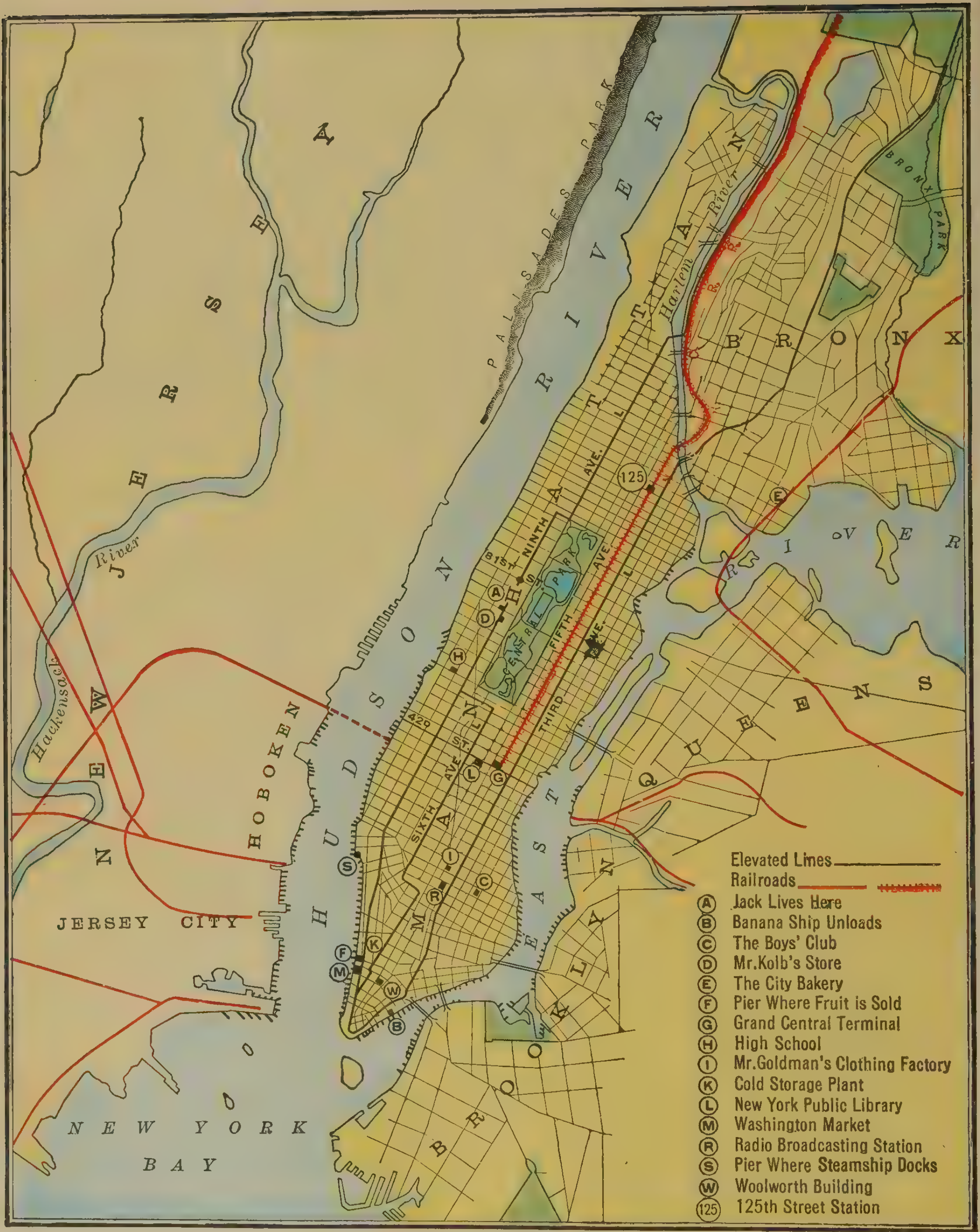
They saw that Mr. Woodchuck had waked up after sleeping all winter. They had not seen him but they knew he was awake, because they saw the fresh tracks about his hole.

The woodchuck has an easy way of spending the winter. It is called hibernation. He crawls into his hole, goes to sleep, and sleeps all winter. He goes in fat. He comes out lean. Bears also hibernate. Perhaps you can name some other animals that have this habit.

THINGS TO THINK ABOUT

1. Name any signs of spring that you have seen.
2. How does spring change the things you do?
3. Name the spring months. Which season do you like best? Why?
4. What would happen if farmers did not work hard in the spring?
5. Ask your teacher to tell you a story about spring, or to let you sing a spring song.
6. When do we have the longest day? the shortest day? the days that are the same length as the nights?
7. Can you tell why farming is our most important industry?
8. Make a farm poster with pictures that show what happens in the different seasons.
9. Would you rather live in the city or in the country? Why?
10. Did you ever keep a record of "Signs of Spring"? Put in the date when you see each sign, like this:

Sign of Spring	Date Seen
First wild flower	
First fruit bloom	
First bird from the South	
First blade of grass	


NEW JERSEY
Hackensack River
Palisades Park
HUDSON RIVER
HOBOKEN
JERSEY CITY
NEW YORK BAY
MANHATTAN
Harlem River
BRONX
Bronx Park
BROOKLYN
QUEENS
EAST RIVER
81st St.
Ninth Ave. L
Central Park
Fifth Ave.
Third Ave. L
Park Ave.
42d St.
Sixth Ave. L
125
Elevated Lines
Railroads
Ⓐ Jack Lives Here
Ⓑ Banana Ship Unloads
Ⓒ The Boys' Club
Ⓓ Mr. Kolb's Store
Ⓔ The City Bakery
Ⓕ Pier Where Fruit is Sold
Ⓖ Grand Central Terminal
Ⓗ High School
Ⓘ Mr. Goldman's Clothing Factory
Ⓚ Cold Storage Plant
Ⓛ New York Public Library
Ⓜ Washington Market
Ⓡ Radio Broadcasting Station
Ⓢ Pier Where Steamship Docks
Ⓦ Woolworth Building
(125) 125th Street Station

Manhattan Island where Jack lives. On page 117 is a view of Manhattan Island as the airman sees it. Probably you will wish to compare the map and the picture. You may point to Manhattan Island on the map and on the picture; to the Hudson River; to the East River; to the Harlem River; to the Woolworth Building.

©Fairchild Aerial Surveys

Manhattan Island, a part of the large city where Jack lives.

PART II

LIFE IN A LARGE CITY

JOE AND MARY GO TO NEW YORK, A LARGE CITY

As you read this you may think of something that you want to tell about the largest town or city that you have seen.

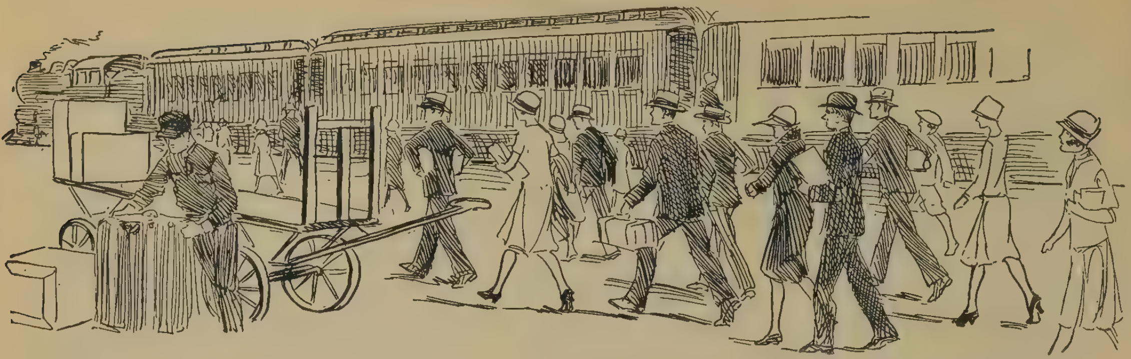
The high school in the country closed two weeks earlier than the high schools in New York closed. That gave Jack a chance to finish school in the country and get back to the city while his old schoolmates were still in school.

Joe and Mary had never seen a large city. They were wild with delight when Jack's mother invited them to come for a visit to Jack's home.

They went back over the same railroad on which Jack had traveled the year before when he went to the old home farm.

As their train came near to New York, it passed many small stations along the railroad.

There were many fine houses and several stores near most of these stations. Nearly every house had green grass and shade trees around it. Some of the stations had lawns around them and beautiful flowers growing in beds. Joe looked carefully as the train flew past station after station. He was watching to see if there were milk cans on the station platforms. He never went to the station at home without seeing cans that



The suburban train stops at the station. Are the people going home or are they going to the city?

would hold several gallons of milk. But he could not see a single can at any station. There were not enough dairy farms here to supply milk for the people who lived near by.

As the train sped on, the stations were closer and closer together. Mary thought that they must be in the city.

"No," said Jack, "these are just the suburbs."

"What are suburbs?"

"Well, if a village or small town is near a big city, it is called a suburb," said Jack. "There are suburbs on all the railroad lines that go to New York. My Uncle Frank lives in a suburb called Garden City, and one of my teachers lives in a suburb named Mount Vernon. Many people who work in the city live in the suburbs. Every morning you may see them hurrying to catch the train that takes them to the city. They come back on the late afternoon or evening trains."

After passing many stations in these Suburbs and hundreds and hundreds of nice houses, the train at last came into the city itself.

There were no more villages now, just rows and rows of houses. The houses were built close together on both sides of dozens and hundreds of streets. Mary wondered how there could be so many people. Then she wondered how it would feel to be lost in a big city. She felt frightened and a lump came into her throat. She couldn't get lost, she thought, on her father's farm. In the country it was easy to find one's way to the other farms. But in the city streets, how could the children ever find their own homes among so many houses? How did they know which was their house when the houses were all so much alike? In the country one could tell the Stark place by the big oak tree in the front yard. One knew by the buttonwood tree when he got near the post office. Here the houses looked very much alike, and there were almost no trees.

While Mary was thinking about home and feeling a little homesick in the big city, the train crossed a little river, where boats went up and down. Wharves were built along both banks of the river.

"This is the Harlem River," said Jack. The train crossed a bridge over the river. "Now," said Jack, "we are on Manhattan Island. A part of New York, you know, is on an island."

Joe thought it was time to get off, so he picked up his suit case. But no! The train ran on past more streets and yet more streets. Joe saw the name of a city station. The sign said 125th Street. He could hardly believe it when Jack told him that there were more than one hundred twenty-five streets between this station and the beginning of the city at the lower end of Manhattan Island.

At last the train began to slow down and then it came to a stop. They had come to the end of the railroad in the heart of New York.

"Grand Central; all change," said the conductor. Everybody seemed to be in a great hurry to leave the train. Joe and Mary looked in every direction as they stepped out. They could see very little except stone and cement walls. The train had run into the basement of the station. It was several stories below the street. They had to walk a long way. They went up many passageways and a few stairs before they were in the streets of New York.

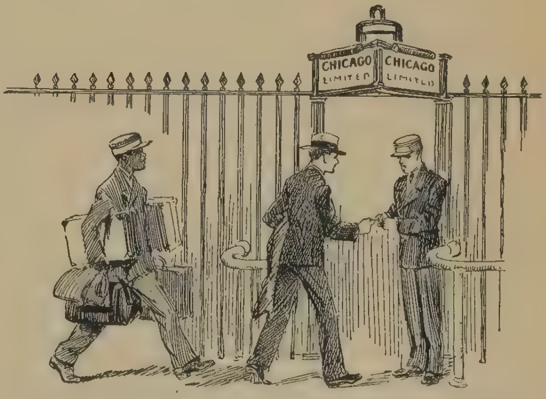
As they went along carrying their bags, Joe read the signs along the different tracks.

"Chicago. Train leaves at 5:15." Another sign had "Boston"; another, "Montreal." Trains go between this great station and many, many cities.

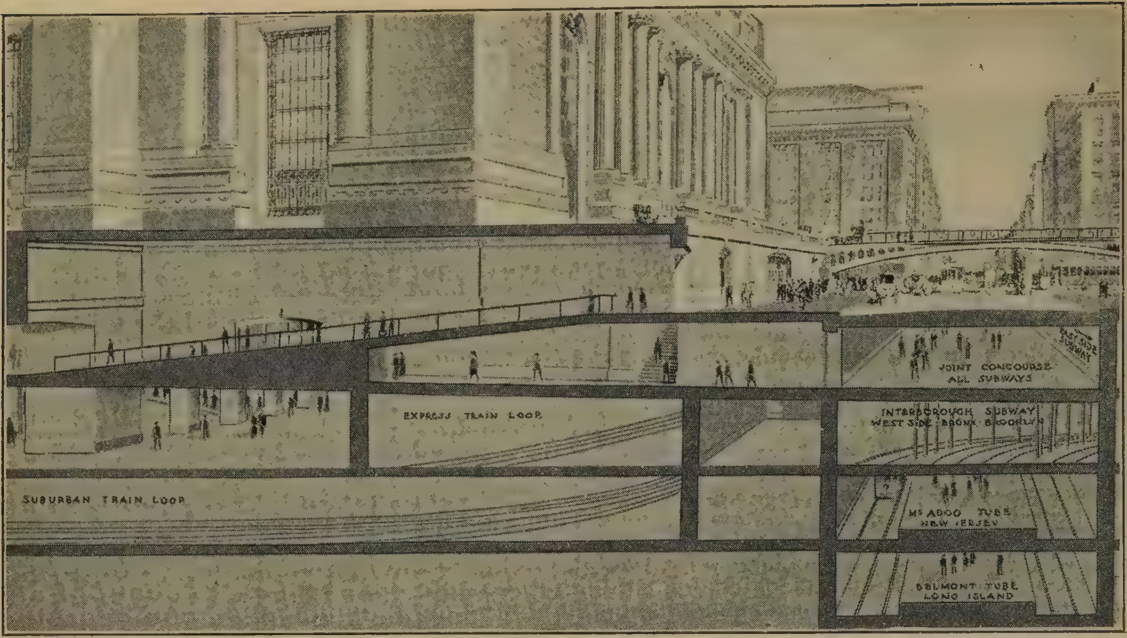
A big station like this one shows how it is that there can be a city with as many people as New York has. Trains seem to come to it from everywhere. These trains bring people to the city to buy things and to sell things. If passenger trains can come, freight trains can also come. The freight trains bring food to the city for its people to eat. The freight trains carry back to the smaller cities and towns the things made in the factories of New York. They also carry the goods from foreign countries that ships bring to New York.

THINGS TO THINK ABOUT

1. Have you ever been in a large city? Tell some of the things that you saw.
2. At what time of day does the railroad between a great city and its suburbs have the most trains?
3. What difference would you see between a station in a suburb and the station near the Brown farm?
4. Have you seen numbers over the front door of city or town houses? What are the numbers for?
5. Make sentences telling why you think that so many city people want to live in the suburbs.



One of these men is the ticket examiner. Who are the other two?


EAST SIDE SUBWAY
JOINT CONCOURSE ALL SUBWAYS
EXPRESS TRAIN LOOP
INTERBOROUGH SUBWAY WEST SIDE BRONX BROOKLYN
SUBURBAN TRAIN LOOP
McADOO TUBE NEW JERSEY
BELMONT TUBE LONG ISLAND

This picture shows a plan of a corner of Grand Central Station. Find the place where suburban trains run into it. The express trains are one story above the suburban trains. There are three subways, one above the other. Locate Grand Central Station on the map of Manhattan Island. (Page 116.)

A LARGE RAILROAD STATION

As you read this story count the things about which it tells but which you have not seen.

When Jack, Joe, and Mary had walked the long way from the train shed in the basement up to the great central waiting room of the station, they were glad to put down their baggage and rest a minute.

"What do you think of this station, Joe?" asked Jack.

"Well, I didn't know that a building could ever be as big as the Grand Central Station. Whew! If you should set our barn right down in the middle of this waiting room, it would look lost. Why, look! You could put two or three more barns in here and there would still be plenty of room."

"Well, I am glad that our barn and hen houses do not have to be here," laughed Mary. "It would be a terrible place for Speckle and the little chickens. They would be stepped on in a minute and mashed flat. I never saw so many people in all my life. What makes them all rush so? You might think they were going to a fire."

"Most of them live in the suburbs," said Jack, "and they hurry like that to get on the trains. People here hate to waste a minute. In the morning they hurry to get into New York. In the afternoon they hurry to get out of New York. Come along, we must hurry too. Everybody in New York hurries."

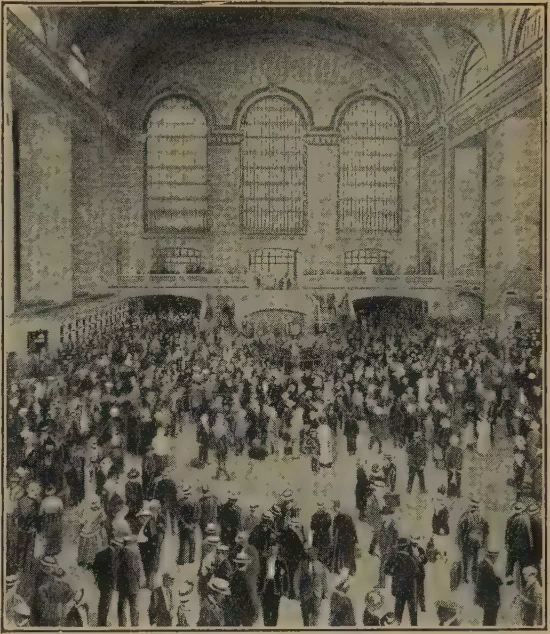
Mary noticed that many of the people carried parcels and packages.

They had bought things in New York and were taking the things home with them.

Joe saw some people buying tickets. Others were buying newspapers or fruit or chocolate at the fruit stands. Some sat on the seats with suit cases and bundles piled around them. They were waiting for a train that would take them on a long journey. Some were wealthy. Some were poor. They were of all colors. There was a family of Indians who had been to Washington to visit the President. They had come to see New York before they went back to their home in the West.

There were Chinese and Japanese and brown men from India. Some women wore handkerchiefs on their heads instead of hats. They were Italians who had just landed from the steamer that brought them to America. They were going to live out West. Each Italian family had a number of children. The little ones played over the seats and got many drinks of water at the drinking fountain.

The station was so big that there were stores inside it—book stores, drug stores, shirt stores, hat stores, and many others. Joe counted seventeen stores inside the station. There were also two or three restaurants and lunch counters. Many people were eating. It was all very convenient, he thought, as he and Jack went into the drug store to buy a tube of tooth paste, and some candy to give to Mrs. Reed. It was very interesting to watch the people come and go and to wonder what they did and where they were going.



Joe thought that this room in the Grand Central Station was large enough to hold several barns as large as the one at home.

THINGS TO THINK ABOUT

1. How do you think the Indians had traveled to New York? the Italians?
2. Name all the kinds of foreign people you have ever seen. Name all that you know something about.
3. If you were in a railway station in China, or in any other foreign country, you would be a foreigner. Does that seem strange? How would you want the Chinese to treat you?
4. If you have a sand table, make a railroad; a central station; suburbs. On a piece of paper draw a diagram showing how a railroad connects towns and cities.
5. Do you think each railroad should have its own station somewhere in a city; or should all the railroads share one station? Give reasons for your answer.
6. Do you think there could be a city without railroads? What do railroads do for a city?

See if you can tell how many stories high these office buildings are.

In a large city one who walks must be quick.

CROWDED STREETS AND TALL BUILDINGS

As you read this, you can be thinking how this city differs from some other city.

As they left the station, Joe looked up and down the street. There was not a blade of grass, not a single green leaf to be seen. The only things that he saw growing were beautiful flowers in a flower store. All he could see was stone and brick. Solid stone sidewalks! Solid stone curb! Solid paved streets! Solid brick buildings! Solid stone buildings!

"Three, six, nine, twelve, fifteen, sixteen; why, that building is sixteen stories high!" exclaimed Joe.

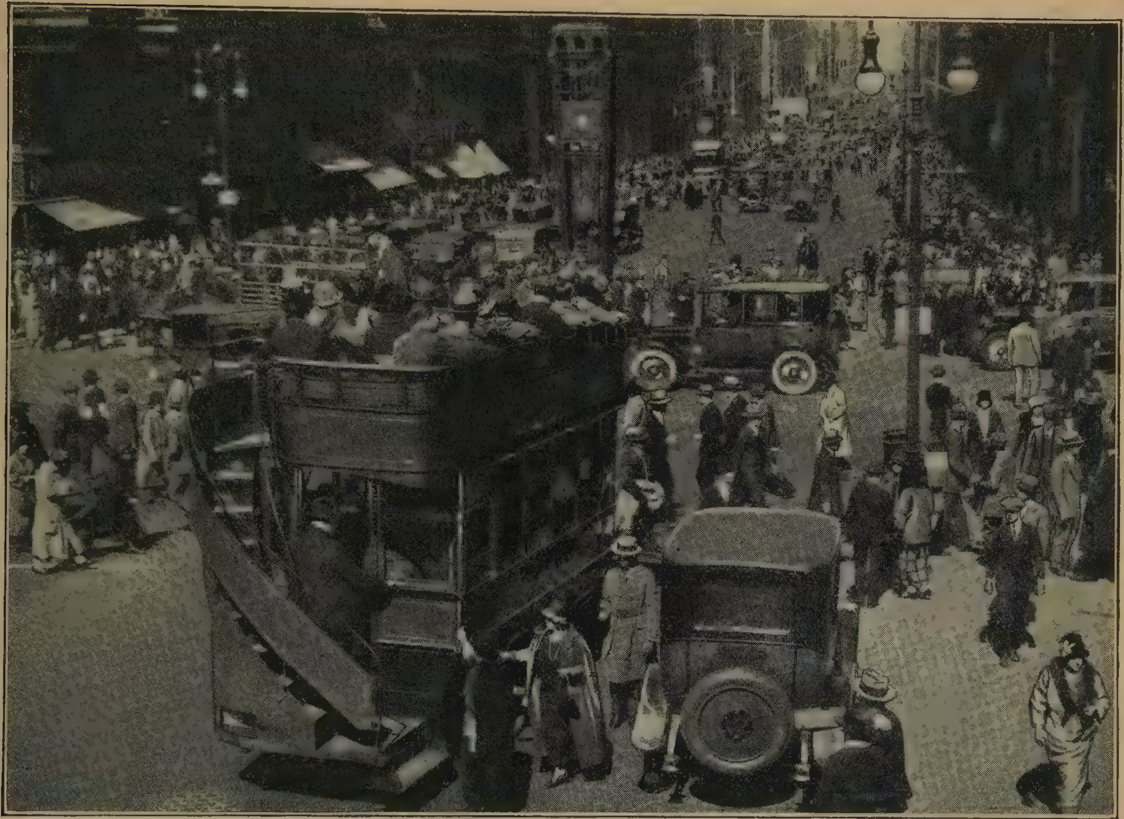
"That's nothing," said Jack, "it's just an office building. There are others much taller. It is full of offices from top to bottom. No one lives in it except the janitor, and he lives in the basement."

"I don't see a *house* anywhere," said Joe, "nothing but stores and office buildings. Where do New York people live?"

"Oh, they live in the side streets and away up town, and in the suburbs; and of course on the East Side. I must take you to see everything."

They started to cross the street.

"We shall have to wait a while," said Jack. Then Joe saw why it was that the daily paper told so much about people getting hurt or killed by automobiles in the streets of our large cities. Such streams of automobiles! One stream came up one side of the street and another stream went down the other side of



A quiet moment on Fifth Avenue. The traffic policeman's tower is in the middle of the street. Can you find the name of the cross street on the lamp post? On which street at this corner are automobiles moving? The streets here often become full of automobiles. Then none can move for several minutes.

the street. Joe wondered how people could ever get across.

In the middle of the street stood a policeman. He looked down the street and held up his hand. Then all the automobiles on that street stopped. The people walked across the street, and automobiles in the cross street had a chance to get across too. Soon there was a line of automobiles waiting for a chance to go. Then the policeman waved his hand, which meant "Go," and the waiting automobiles all started on again.

In big cities the people and the automobiles on one street are supposed to go while the automobiles and people on the cross street wait their turn. By taking turns no careful person need be hurt.

In a little while Jack, Mary, and Joe came to one of the busiest street corners in the world. It is the corner of Fifth Avenue and Forty-second Street. Along Fifth Avenue there are signal towers nearly as high as a two-story house. A traffic policeman sits in a small room in the upper part of the tower. At the top of each tower are three large electric lights, one having a red globe, one an amber-colored globe, and one a green globe. The green light is the signal for all traffic on the street to move; the amber light is a warning that the traffic light is to be changed; and the red light signals to all automobiles on the street to stop. The traffic officer in the tower turns the lights on and off.

There is also a policeman standing out in the middle of each one of the four streets. Such a river of people! They just flow along as a stream of water flows. Sometimes the policemen hold up their hands and call, "Stay back, stay back."

Policemen also stand at the curbs to keep the people on the sidewalks. They make people go back to the curb if they try to cross when the sign tells them to stop.

Joe was glad to wait. He enjoyed looking at all the automobiles. There was every kind of automobile and truck that he had ever seen, and many besides. One was a kind of two-story bus. People were riding on top of it. In all the crowd there was only one wagon drawn by horses.

"What is that?" said Joe, as he looked up and saw a great marble building that looked like the picture he had once seen of a palace.

"Oh, that is the public library," said Jack. "Anyone can go in there and read as many books as he wants. Do you want to go inside?"

"Surely," said Joe and Mary.

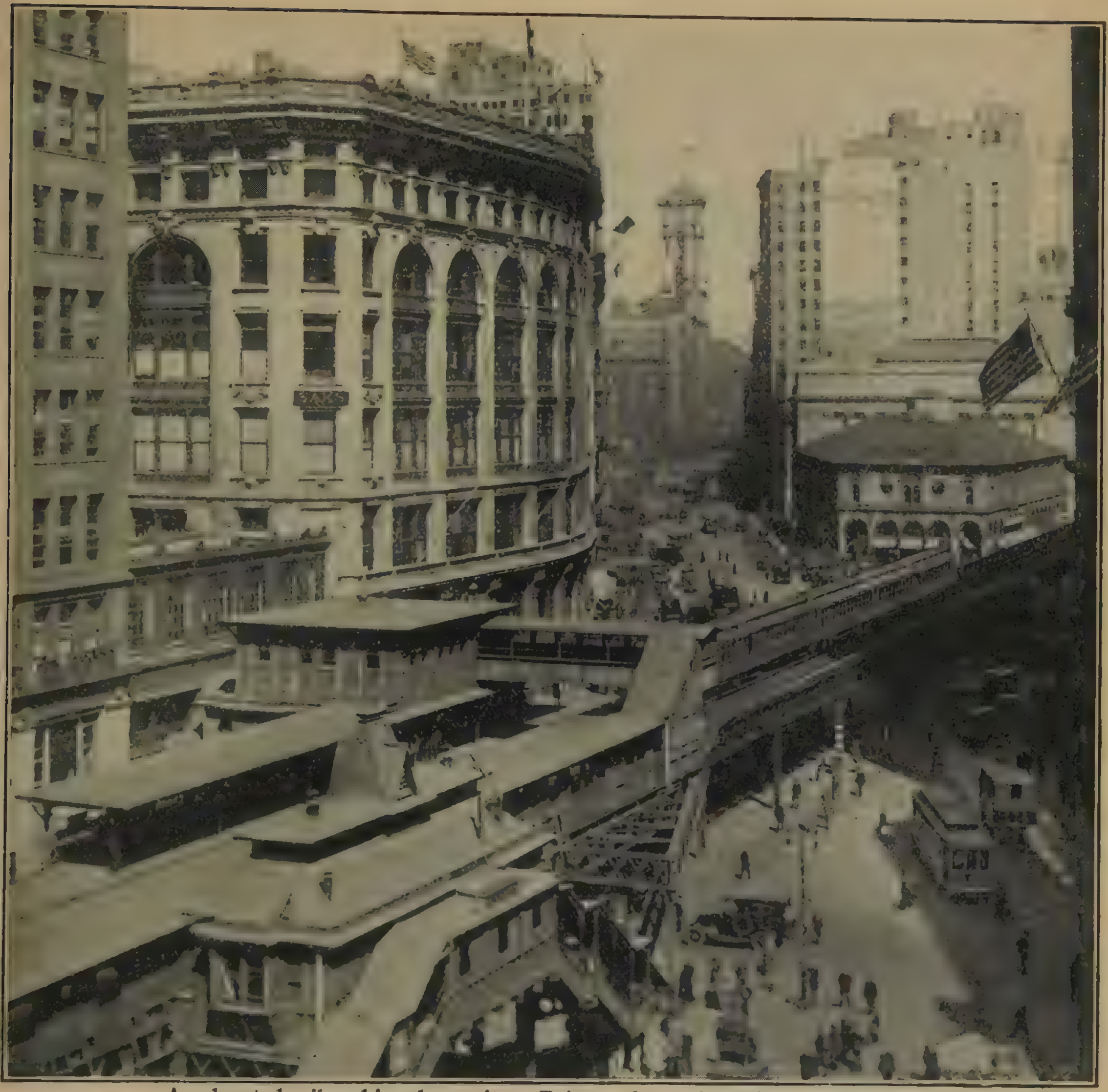
They climbed up the marble steps and entered the great building.

Joe had never seen so many books. Some of the printing was in languages he could not understand. There were more people reading in the library than there were students in Joe's high school in the country.

The thing that most interested them was the reading room for the blind. Here many blind people sat passing their hands back and forth across the pages. Some smiled; some looked interested; some looked serious. They were all reading. They read with their fingers. The letters were raised so that the blind could read by feeling the letters.

THINGS TO THINK ABOUT

1. How tall is the tallest building in your home town?
2. Where have you seen a traffic signal?
3. Why do you think there was no policeman in the middle of the street at the station near the Brown farm?
4. You may have heard the saying, "Safety first." What does it mean?
5. If you live in a city, try to get a copy of the traffic rules. Let someone give a short talk on "Safety First" after he has read the rules.
6. What is the "busiest corner" of the place where you live?
7. Why do big cities have tall, many-storied buildings or skyscrapers? What would happen if all the buildings were only two stories high?
8. Why should cities and towns have libraries? Name some books you would like to have in your library at home.
9. The first white people in New York lived in log houses at the lower end of Manhattan Island. What would surprise them most if they could see New York today?
10. Make a small sketch map on the blackboard showing two streets crossing? Put in the "Go," "Stop" signs. Tell the class how the automobiles move first on one street, then on the other street.



An elevated railroad in a large city. Point to the station; the elevated train.

AN ELEVATED RAILROAD

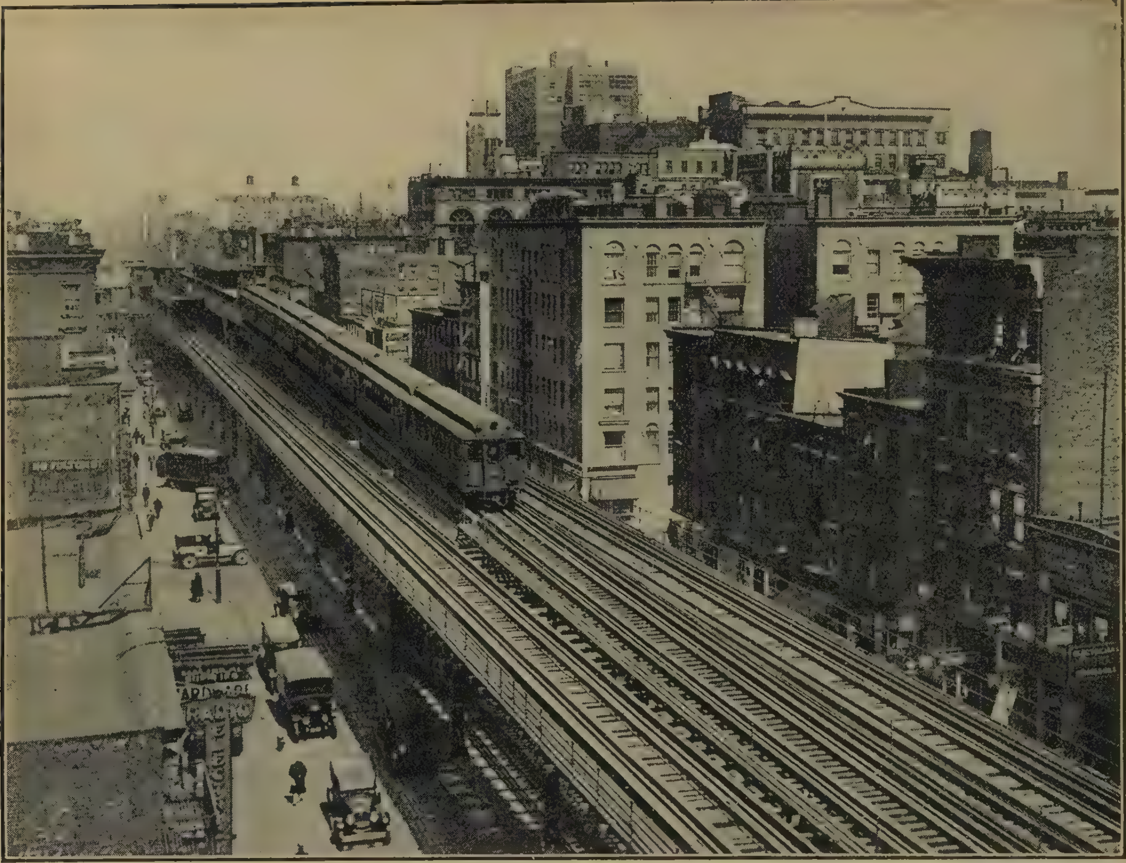
As you read this story, you may be thinking of some reasons why it costs more to live in a large city than it does to live in the country.

As they left the library, Joe made Jack laugh by pointing to something he called a railway bridge with a house on it.

"Strange place for a house," said Joe. "Who lives in it?"

"That is not a house," replied Jack. "It is only the 'L.' "

The "L" was really a long iron bridge built on iron posts. It extended for miles and miles over the middle of the street. The iron bridge had two railroad tracks on it. Its real name is "elevated railroad," but people have nicknamed it the "L." Trolley cars and wagons can go along the street



"In most places the elevated train went past second- and third-story windows. Sometimes one could look right into people's parlors and bedrooms." After you have read the story, tell about all the things you see in the picture.

while trains run on the elevated railroad above the street. You might say there were two streets, one over the other.

Joe thought it was a good long climb to go up as high as the third story of a house to get to the train, but people in New York do not seem to mind the climb. They scramble up the steps as if someone were chasing them.

The "L" had one track for cars going up town and one track for cars going down town. A train moved away just as Mary and the boys reached the top of the steps. The station platform was crowded with people. In two minutes another train came. Joe had counted forty-three people who had come since the other train left only two minutes before. The train was so full of people that these forty-three could only squeeze themselves in on the platforms at the ends of the cars.

Riding on the platform gives a very good chance to see the city. Sometimes the "L" was so high that they could look over the housetops. As far as they could see were radio wires, hundreds and hundreds of them. Once, as the train turned a corner, Joe was surprised to see that the track went over the tops of some houses. But in most places it went past second- and third-story windows. Sometimes one could look right into people's parlors and bedrooms.

Once they saw many women sitting at sewing machines. At another window a man was making a chair. But most of the windows that the train passed were in people's homes.

"Do the people in New York like to have everybody looking into their houses like this?" asked Joe.

"Oh, they get used to it," said a man next to him. "But, say, a funny thing happened yesterday morning. Something was the matter with the train as I was coming down to work. We got stalled opposite a third-story window. The train was so close to the house that a boy stepped from the car to the fire escape. A woman looked from the third-story window of the house into the car. She heard one of the passengers say, 'I do not know what to do. Unless this car starts soon, I shall lose a hundred dollars in my business. I wish I could get off and take a taxi.'

"'Well, you can do it,' said the woman. 'Step to my fire escape, come in through the window, and go down my stairs.'

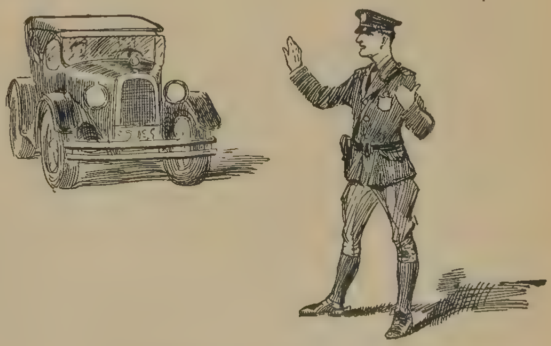
"'Fine!' said the man, as he climbed through the window. I followed the man and soon two hundred of us were in the street."

The man told Joe that every two minutes a train stopped at the station on the elevated. The train that Joe was on went past many stations before it reached his station. It was still on Manhattan Island and Jack told Joe that Manhattan Island is only part of New York. This made Joe know that New York was indeed a very large city.

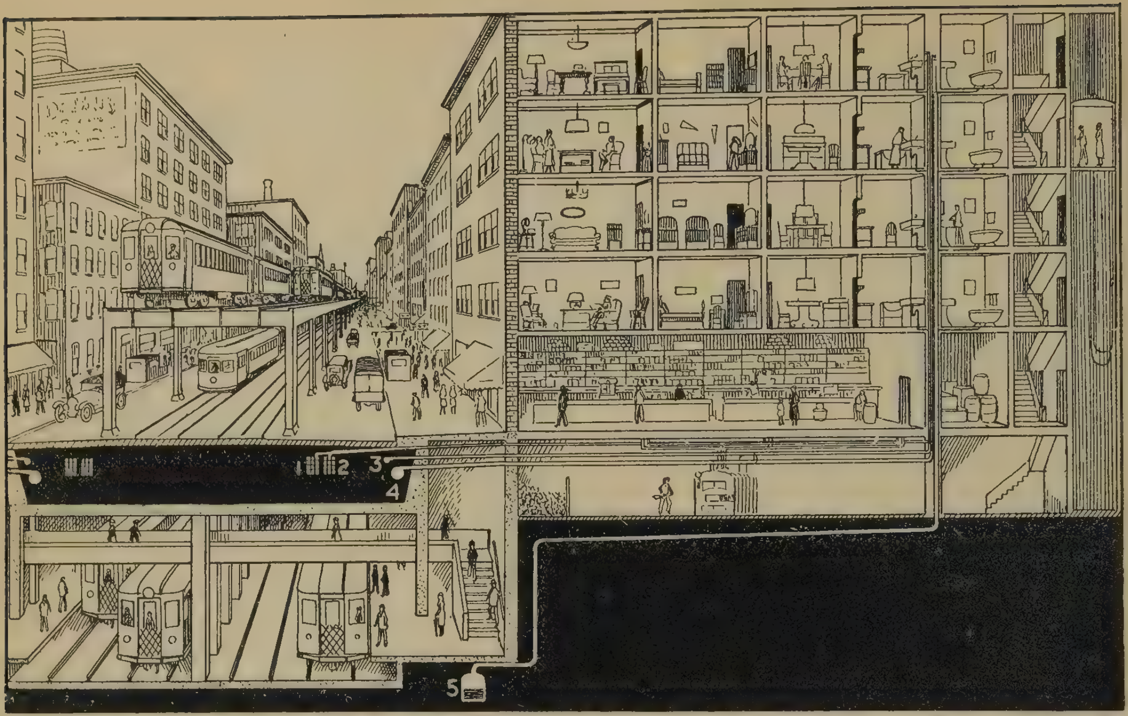
Where a city is so large, people must go a long way to find open country. This makes many people wish to buy any piece of land that may be for sale. This makes the land very costly. There are thousands and thousands of people in New York who have no yards at all. Joe saw people hanging their clothes out the fourth-story window to dry. They hung the clothes on ropes that ran from one house to the next. The ropes moved along on pulleys.

THINGS TO THINK ABOUT

1. Why do you think an "L" train can make faster time than a trolley car on the street?
2. Why do you think the city people built the "L"?
3. Tell some things about the "L" that are good and some that are not so good.
4. Why do not all cities have elevated tracks?



Tell what the officer is doing.



This picture shows how some parts of large cities are built. See the electric-light wires, (1); telephone wires, (2); gas main, (3); water main, (4); sewer, (5). At the extreme right is an elevator. Tell how the people use the building. Tell how they use the street.

A HOME IN A LARGE CITY

As you read this story, think how this home differs from Joe's home in the country.

At last they came to the station nearest to Jack's house. In five minutes after leaving the station on the "L," they went around a corner into a street that had no trolley cars.

"This is our street," said Jack. "I live in the fifth house from the corner."

Joe looked up and down the long street. There was not a yard anywhere to be seen. Every house touched the house next to it, so that there was no room between them for yards. The door of every house opened on the street. There was no room in front for yards. Mary thought that the whole street seemed like one long house, with many doors and windows.

There were a few trees standing along the edge of the sidewalk. Each tree had about a foot and a half of bare ground around it. Then came the stone sidewalk.

"No wonder these trees look sick," said Joe to himself.

By this time they were walking up the steps of the fifth house.

Jack's home was in an apartment house. Apartments are big houses in which several families live. Four families lived on each floor of the house where Jack lived. There were five floors. The part of the house where one family lives is called an apartment.

Inside the front hall there was a locked door. On the wall by this door there was a row of push buttons for door bells. Beside each button was a card with a name on it. There were twenty name cards, one for each family. There were twenty push buttons and twenty letter boxes.

Jack pushed the button that had his father's name beside it. That rang the door bell in their apartment upstairs.

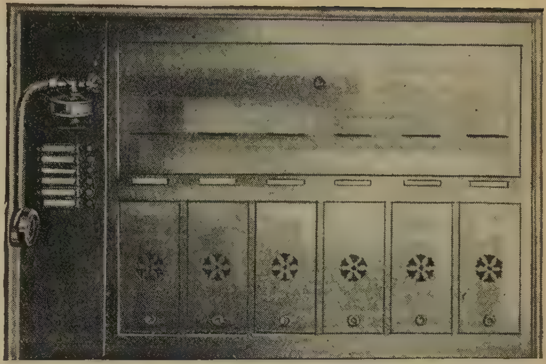
"Clickety, clickety, clickety, click," said the door, and it swung part way open. Jack's mother had touched an electric button upstairs. That opened the locked door in the front hall on the street floor.

Jack's family lived on the fourth floor. As the children walked up the stairs, Joe noticed that on each floor there were four doors with name cards on each. There was also a big letter, A or B or C or D, on each door. To tell where they live the people who live in apartments in New York say, "We live at No. 511 So-and-so Street, Apartment 3B," or some other number.

There was no window in the hallway, only electric lights.

"Now suppose this house should get on fire," said Joe, "how would the people ever get out?"

"That's easy," said Jack, "go down the fire escape, of course. You know the little iron stairways I showed you outside the houses when we were on the 'L' train? If there is a fire, one just steps out the back window and climbs down the iron stairs to the street. All New York buildings that are not fireproof must have fire escapes. This is the law."



Some of the push buttons, name cards, and letter boxes in the hall of Jack's apartment.

Jack's mother welcomed the travelers at the door of her apartment. She was glad to see Joe and Mary. She was so very glad to see Jack.

"How well you look, Jack! I did not dream that you would get so big and strong!"

The apartment seemed very small to the children from the country because there was so much more room in their own house. Here were only four rooms and a bath, but Mrs. Reed found a place for the visitors. Joe had a small narrow bed in Jack's room and Mary slept on a comfortable couch in the dining room.

When Mrs. Reed showed Mary the kitchen, Mary thought it was a closet. As she helped Mrs. Reed to get dinner she was surprised to find how easy it was to reach everything. There were shelves for the dishes and groceries, hooks to hang things on,

Mrs. Reed's kitchen. Tell how this kitchen is like or is different from mother's kitchen at home.

and a cupboard for the pots and pans. Because the room was small, all these things were near to one another and to the stove and sink.

"Mrs. Reed," said Mary, "I could stand in one spot and reach almost all that you need to use for getting a meal. It surely saves a lot of useless walking. I wish mother did not have to walk across our big kitchen so many times when she gets supper."

Mary had helped her mother with housekeeping. She could see that it takes less work to live in an apartment than it does to live in a house with a big kitchen and rooms on two or three floors.

Mrs. Reed's cook stove was heated by gas. Mary had never seen a gas stove before. She was surprised to see Mrs. Reed turn a little handle that opened a hole in the gas pipe. Then she lighted the gas with a match. She had made a perfect fire in a second. The gas burned with a hot blue flame.

Every one of the twenty apartments in that house got gas from the same pipe. This pipe got its gas from a big pipe in the street. This big pipe is called a gas main. It gets its gas from a big tank miles away at the gas works.

The gas in New York is made from coal. In some places in our country there is natural gas that comes out of wells in the ground.

All the twenty kitchens and twenty bathrooms in the apartment house got water from the same pipe. In the street was a water main. It was a very big pipe. It was three feet in diameter. The water from a clean lake far away in the country ran through the main pipe to the water pipes in the different houses and stores.

As Joe looked out the back window of the Reed apartment, he saw that the backs of the houses on the next street were very near. They were so near that there was only room for a narrow alley and for little back yards that were no bigger than a room. The alley was only four feet wide. The yards were paved with solid cement like streets.

The apartment was all on one floor, so it had no attic and no cellar. There was no pantry in which to keep food. That was the reason that Mrs. Reed could buy only a little food at a time. Jack's family had to go to the store every day. Sometimes they went several times a day, or they telephoned to ask to have things sent to them. It was not far to the stores.

The children told all about their trip at dinner time.

"Everything seems different here," remarked Joe.

"Yes, indeed," said Mr. Reed, "I know our little home seems queer to you. Our work is different, too. I work in a big factory down town. I am the manager. I start work at eight o'clock every morning and stop at five o'clock every afternoon, except Saturdays, when I stop at noon. Sometimes, though, something happens that I have to straighten out. Then I stay until it is done. I have worked in that factory office until bed time."

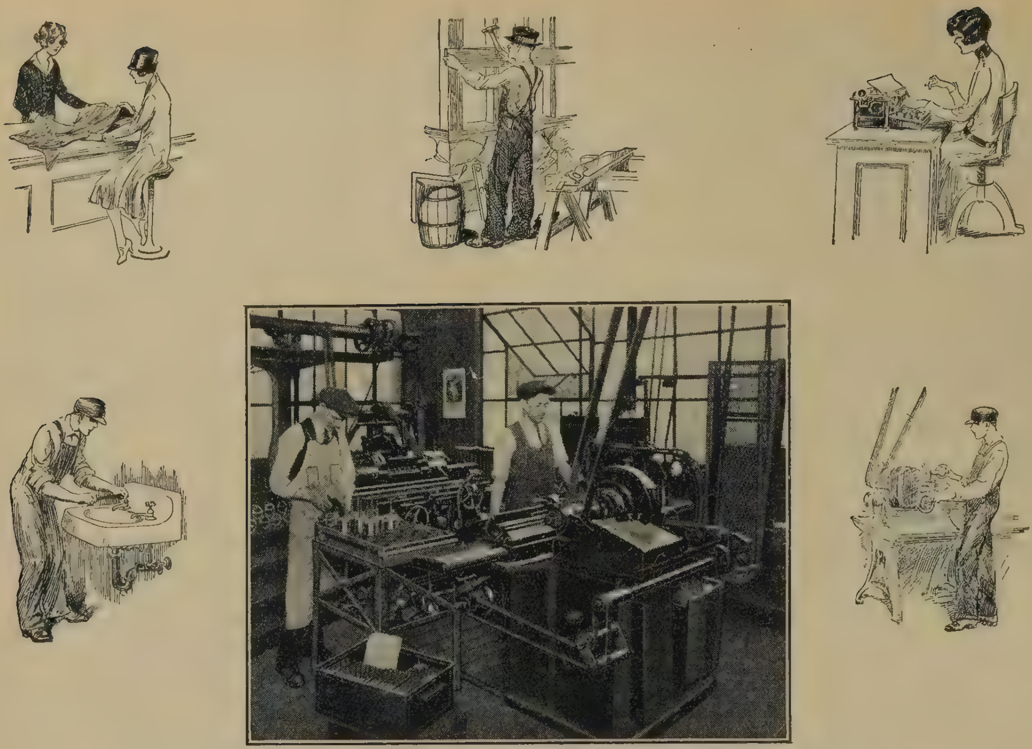
"Did you have nothing to eat all day?" asked Mary.

"I eat luncheon at a restaurant down town. Most men in New York eat their luncheon away from home, because they work so far from home. Around the corner on the avenue you will find a restaurant or two in every block. There are thousands of young men and women who have only a small room in which to live. They eat in restaurants and work down town. Many families also eat in restaurants."

"Father works on our farm nearly all the time," said Joe. "Why, he is almost never away from home even for one meal."

THINGS TO THINK ABOUT

1. Why was Jack's house so much smaller than the farmhouse?
2. Which family could keep more flowers or pets? Why?
3. Joe had a hard time getting enough sleep in Jack's home. What noises do you think may have kept him awake?
4. Why do you suppose Mrs. Reed had a gas stove instead of a coal or wood stove in her apartment? How is your stove heated?
5. Where does the water you use come from?
6. How many things can you think of that made it easier for Mrs. Reed to keep house than for Mrs. Brown. Which home is like yours?
7. Which kind of home was the better place for the children? Why?



Some people Jack had known at school. Tell what each one is doing.

CITY SCHOOL AND CITY WORK

As you read this you will be thinking how the city school is like your school, or how it is unlike your school.

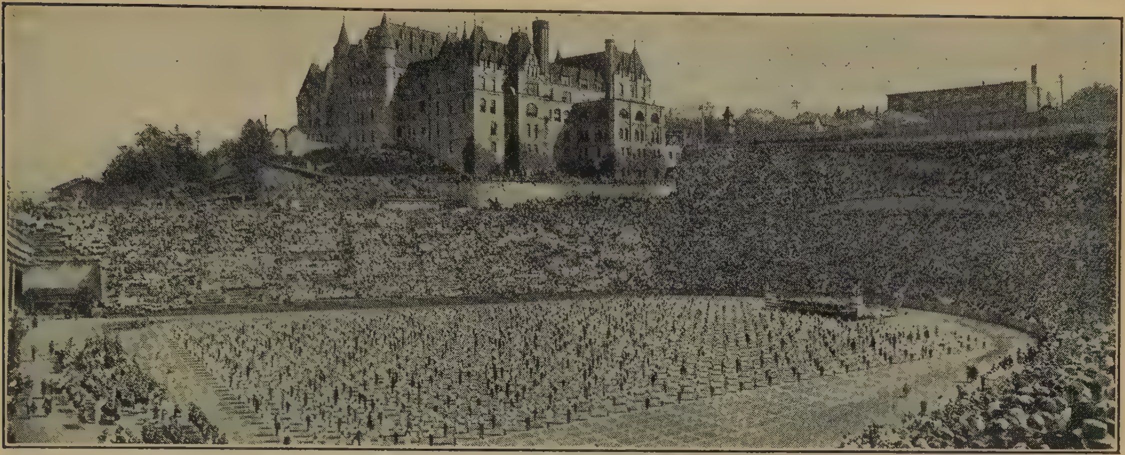
There was one thing that made Jack feel a little strange when he got back to the city. The boys who had been in school with him in the eighth grade the year before were no longer together. He could not sit with them any more. Some had gone to the high school. Some had gone to work.

Some of these boys were office boys or were working in stores. One was in a machine shop, learning to be a machinist. He was greasy up to the elbows. He did not mind the grease. He loved machinery. Another boy was learning to be a plumber. Another was working as a carpenter's helper. He wanted to be a carpenter some day and help to build houses.

Most of Jack's old eighth-grade friends had gone on to the high school. The afternoon after he got back to the city, Jack went with Joe to the high school to meet his old chums.

This school had 3000 boys. It did not seem like the high school in the country where Jack and Joe had been all winter. In this big city school there were only boys. In the country high school there were both boys and girls. In the country school each teacher taught several subjects. In the city school each teacher taught only one subject.

The city school taught typewriting



Field day at a high school in a big city.

and several other subjects that helped people to earn money.

Joe wondered where their baseball field was. He saw no place at the school for anyone to play. They had to walk fifteen minutes from the school to the place where they took exercise. It was in a very large building.

The floor of this great building had ten large play places. They were marked off from each other by white lines on the floor. The boys were divided into groups or squads of eighteen. Each of the ten play places had a squad of boys playing a game.

There were two teachers to look after the boys. Some of the squads were playing kick football (association football). Some were playing baseball. They did not use a regular baseball. It could be knocked too far. They had a soft baseball. You could not knock the soft ball very far. The bases were much closer together than in a regular baseball field. That is the way they managed to play ten games of baseball in the armory at the same time. There was much noise when ten games were going on at once.

"Screech! Screech!" That was the sharp sound of a teacher's whistle. Every game stopped instantly. The ten squads of boys trotted off to change their clothes and go home or back to school. They had played hard for half an hour. That was the share of time that was allowed for them. As these boys left, ten other squads took the play places, and the games were going on again in a minute.

The Field Day

The next day was to be a great day at the high school. It was the yearly field day. One day every spring each high school in New York has a holiday for spring sports. Teams from each high school play against teams from other schools. This field day settles the championship of the city.

When Joe read the program, he

The start of one of the races at the track meet.

saw that they had the same contests that he had seen at the country high school. But he saw one difference. There were many classes for each race. There were so many boys that they had to have many races to give each boy a chance. There was a hundred-yard race for little boys of the first class in the school (freshmen); a hundred-yard race for middle-sized freshmen; and one for big freshmen. Every class in the school was divided in this way.

It made a very busy day to have all these races, jumps, and other contests. There was much cheering and clapping of hands.

The people who manage the city schools have found that it is very important to take care of the health of school children. Taking exercise is one way to keep healthy. It is not easy to take enough good exercise in the crowded city. That is one of the reasons that the city high schools have athletic teachers, gymnasiums, and athletic contests. That is one of the reasons why it is good for boys to be Boy Scouts and for girls to be Girl Scouts or Camp Fire Girls.

THINGS TO THINK ABOUT

1. What work will the boys and the girls of your school do during vacation?

2. Is there a high school near you that teaches people how to do things that will help them to earn money? What subjects are taught?

3. If you have seen a track meet perhaps your teacher will let you tell about it.

4. Do you think that every boy and girl ought to spend some time at sports? Why?

5. Tell about some of the sports you have at your school. How do these games help to keep you healthy?

Mr. Kolb's store. There are many like it in all our large cities.

JACK TAKES HIS OLD JOB—THE GROCERY BUSINESS

When you have read this story, you can make a list of the kinds of work that can be done by the school boys and girls in the country and by the school boys and girls in the city.

Several of Jack's city schoolmates were earning money while they went to school. They worked in the afternoon after school had closed. One boy worked in a small public library from three until six o'clock every school day. On Saturday he worked all the afternoon. His job was to put the books away on the right shelves after people had used them.

Another boy delivered newspapers to everyone in his street who took an evening paper.

One boy got up early in the morning and worked before school. He also worked all the afternoon to do the work of a janitor who was sick. This janitor took care of several rooms in one of the big public-school buildings.

The morning after the high-school field meet, the telephone bell rang before Jack was through breakfast. It was Mr. Kolb, the grocer, who had the store around the corner. Jack had worked for him before he went to the country. He had delivered groceries for two hours every afternoon.

"Hello, Jack," said Mr. Kolb. "I saw you going past the store yesterday. I am glad to see you back. You have grown a lot since you went away last summer. I just wondered if you would come and help me out today? My delivery boy has a day off. You know how to do the job as well as he. I will pay you two dollars."

"All right," said Jack. "I'll be down right away."

Joe thought that this would be a good chance to see things, so he went along.

Inside the store, the boys found many small wooden and pasteboard boxes placed in rows on the floor. In the boxes were cans of milk and beans; bags of sugar, rice, and dried fruit; pasteboard boxes of crackers, and many other things ready to be taken to the people who had bought them.

On the pavement in front of the store stood a push cart. Mr. Kolb delivered the goods that his customers bought. He had a push cart to carry the bundles to the homes of his customers. The people who bought from him all lived near his store.

Joe wanted to help, so he picked up an armful of packages and put them into the cart.

"Wait," said Jack, "you will mix them up. They must go in just so."

Then he began to spread the packages out on the sidewalk. He fixed them in order. At one end he put the packages for people who lived far away. At the other end he put those for people who lived near.

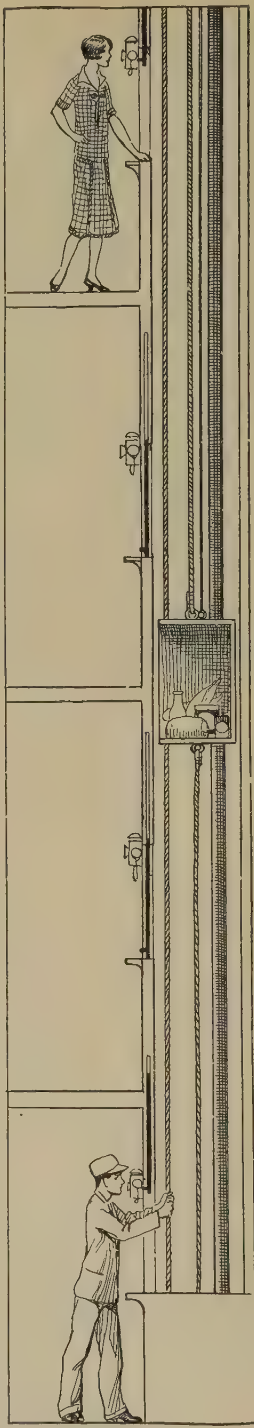
"Now Joe," said Jack, "you hand them to me."

Jack carefully loaded the cart so that when he got to a certain house he could take out the package that belonged there.

When they reached the first apartment house, they did not go to the front door. They went to a side door marked "Tradesman's Entrance." Everyone bringing goods to that house had to go in by this door.

Here Joe saw something new to him. Inside the tradesman's entrance there was something that made him think of the kitchen cupboard at home. It was a dumb-waiter. A dumb-waiter is a little elevator. It has shelves to hold packages or dishes. It is fastened to a rope, and is pulled up or down from floor to floor by the rope.

Jack put the package of groceries in this cupboard. Then he pushed a button that rang a bell in the apartment to which he wanted the things to go. Then he began to pull the rope. As he pulled the rope, the dumb-waiter with the groceries went on up, up to the third floor. There the woman, who had opened the door of the dumb-



Jack pulls the rope and the dumb-waiter takes the groceries up to the lady.

waiter shaft, was waiting to take the packages. The dumb-waiter saves much walking up and down stairs.

When they went out to the street again, some little girls were jumping rope. Others were playing hopscotch. City children play these games a great deal because they can be played on almost any sidewalk.

Some larger girls were playing step-bounce-ball. You have to be a good thrower to play that game. It takes a lot of skill.

"Oh, my," said Jack, as they stopped at the next house. "This is a six-story walk up."

This meant that the house was six stories high and had no elevator. They do not build a house more than six stories high in New York without an elevator.

"Old Mrs. Levy lives on the top floor," said Jack, "and just see what a lot of stuff is in her box!"

"Well, here goes," he said, as he started up the front stairs. He carried the box to the third floor and Joe carried it the rest of the way. By that time Joe began to think that delivering groceries was work and not at all like play.

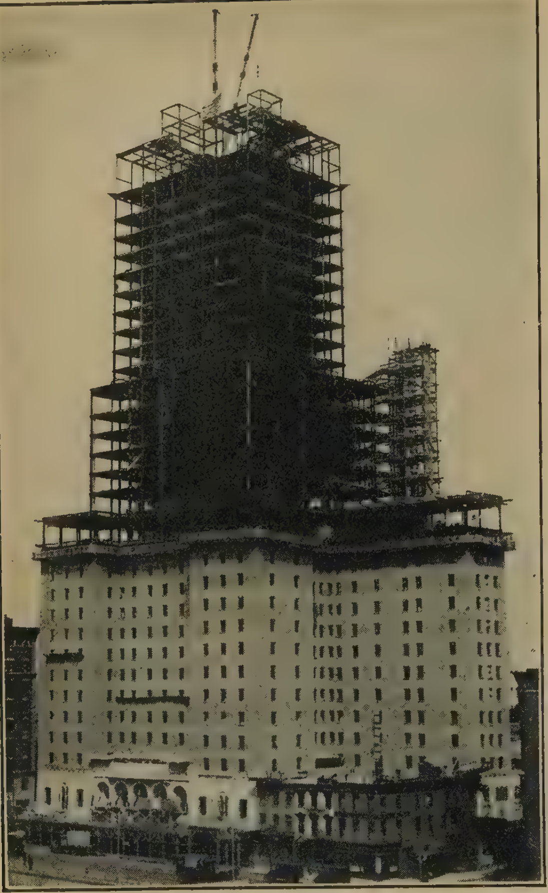
As they went downstairs, they met the boy who delivered laundry packages. Jack wished that groceries were no heavier than clean clothes.

The next time Jack stopped at a house where there was a dumb-waiter, Joe stayed by the cart and watched the boys playing in the street. Some of them were dodging in and out among automobiles and playing catch ball. Down near the end of the block was a building without windows on the street side. Here some small boys were playing hand-ball. One boy batted the ball with his hand against the wall. When the ball bounded back, the other boy hit it with his open hand. If one boy missed, the miss scored a point for the other boy.

THINGS TO THINK ABOUT

1. If you have ever played store tell what you sold.
2. How far is it from your house to the stores where your mother buys food?
3. How are the goods carried from the store to your house?
4. How high are the houses in your neighborhood?
5. Why are they so high in New York?
6. Pretend that you are Joe. Tell about delivering orders with Jack.
7. Tell how Mr. Kolb's store was like the village general store shown on page 94. Tell how Mr. Kolb's store was different.
8. After you have looked at the picture on page 136, you may wish to get a shoe box and a piece of string, and show how a dumb-waiter moves up and down.
9. Name the games which the city children were playing. Do you know how to play these games?

Jack sweeps out the store.



A large office building partly finished. You can see the steel frame at the top. The high buildings are made narrower toward the top to keep from making the streets so dark.

This street is Fifth Avenue, New York. Many rich people live on this street. On one side of it is Central Park. Find Central Park and Fifth Avenue on the map, page 116.

CITY STREETS

After you read this story, make a list of all the kinds of stores that you have seen.

Jack had in his cart one package that was for a family in the next street. That gave Joe a chance to see how the city on Manhattan Island is laid out. It has a few wide streets that run up and down the long narrow island. Then it has many shorter cross streets.

The cross streets have very few stores. Sometimes every house in a whole block is an apartment house with many families living in it.

On many of the wide streets that run up and down the island almost every door opens into a store. Some of these streets have nothing but stores for miles and miles.

As Jack and Joe went down the long street, Joe counted in one block, two grocery stores, two fruit stores, two meat stores, a tailor shop where men were busy pressing and mending men's suits, a millinery store, a haberdashery, which sold men's furnishings such as shirts and collars, a drug store, a laundry, two restaurants, a candy shop, a flower shop, a shoe-repair shop, a hardware store, a garage, and a delicatessen shop.

This last store with the long name was one Joe had never seen or heard about. It sold many kinds of food. The things back of the big, clear glass window made Joe hungry. He saw roast turkeys, roast chickens, roast beef, cooked sausages, boiled hams, figs, dates, apples, oranges, tomatoes, lettuce, celery, nuts, and cake.

Just then Mary came along. She was like Joe; she wanted to see this store. She and the boys went into the delicatessen shop.

A man who could not speak much English was having the delicatessen man make him a sandwich of dark rye bread, sausage, and a big slice of raw onion. He went away with the sandwich in his pocket.

A woman took away some rolls, some cold, sliced ham, and some cole-slaw in a wooden dish. She lived in a small apartment and did not do much cooking.

A boy carried away a can of sardines, a loaf of bread, a quarter of a pound of butter, two tomatoes, and a pint of milk in a paper box. He asked the man to put the milk in a box so that he would not have to buy a bottle or bring one back.

"Goodness," said Mary, "I'm glad we do not have to live out of tin cans and paper boxes as these people do." She thought of the long rows of vegetables that grew in the garden at home and of the dozens of jars of fruit in the cellar of the farmhouse in the country.

Fruit stalls in a large city market.

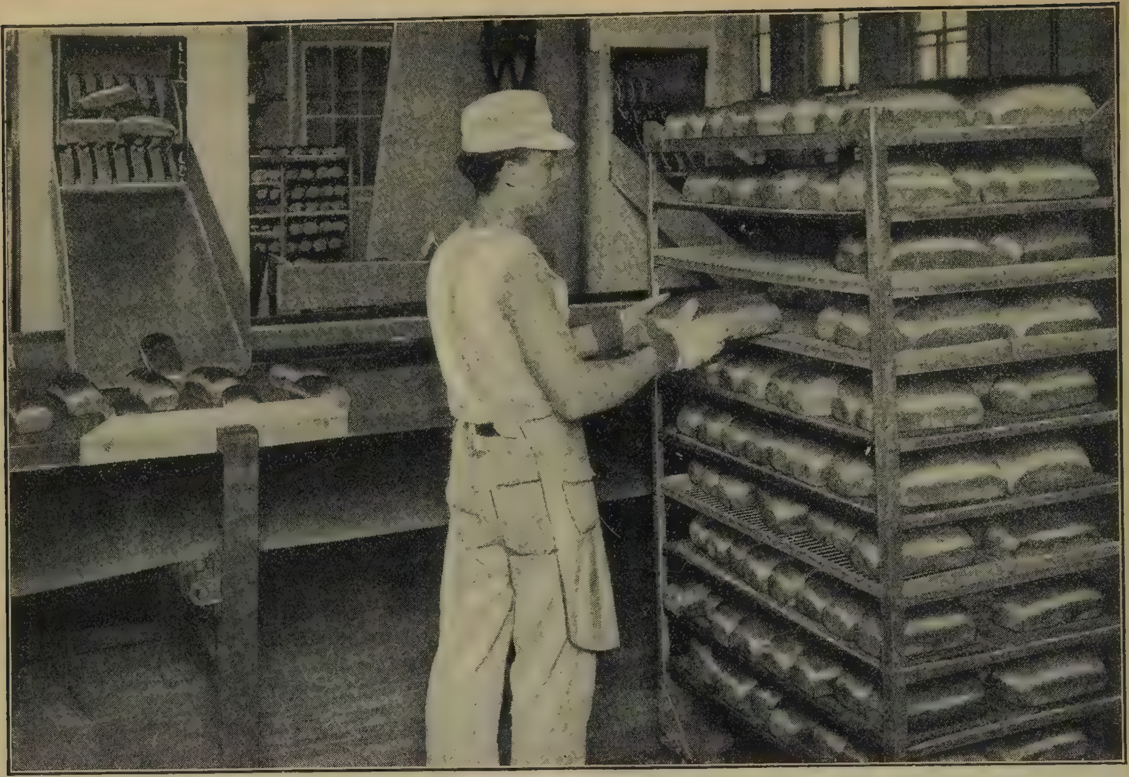
THINGS TO THINK ABOUT

1. Try to make a simple map that will tell a story about your own neighborhood. This map may be made on the ground, on a paper, on the floor, or on a blackboard. A good way to begin is to draw an important road or street *near* the school. Then locate on this main road some building that you all see almost every day. Build up your map by adding roads, streets, buildings, and other well-known places. Perhaps you can show the location of the house in which you live.

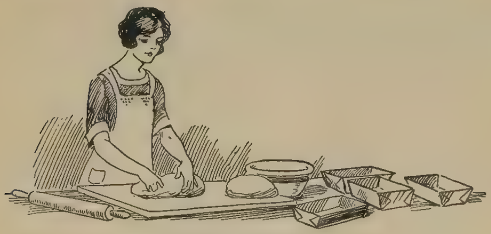
2. What foods can you buy in your neighborhood that are ready to eat?

3. The general store in Joe's home village sold most of the things that are sold in many different stores in all large cities. Why are there not many different kinds of stores in Joe's home village?

4. Do you think that the delicatessen store is suited to life in a large city?



A city bakery. See the bread being dumped out of the chute by machinery. The man is filling a special order.



Tell what this is.

A CITY BAKERY

Mary's mother made very good bread. She had taught Mary how to do it. Mary was not yet in the high school, but she could make bread that was almost as good as her mother's bread. Mary was very proud of this.

In New York she found that Mrs. Reed did not make any bread at all. The Reeds bought the bread they ate. Every loaf was wrapped in thin waxed paper. Jack said that he carried bread to nearly every family that bought at Mr. Kolb's store. Each day a truck brought several big boxes of bread, rolls, and cake to the store from the bakery.

Mary wanted to know where the bread came from. She wanted to see it made.

They went down to the store and asked the grocer about it.

"Yes," said the grocer, "I can arrange that for you." He called the bakery on the telephone.

"I'm Mr. Kolb, the grocer. I've been selling your bread down here on Sixth Avenue for three years. My young delivery clerk has handled so much of this bread that he wants to see it made. Will you show him and some of his friends through your bakery?"

As the grocer hung up the receiver, he said to Jack: "They say they will be glad to show you through the bakery, for they are very proud of it and wish people to know about it. You are to be there at 10 o'clock this morning. Ask for Mr. Wetzel."

Jack thanked the grocer and they hurried to a trolley line.

It took them half an hour to get to the bakery. The building was seven stories high.

"We want to see Mr. Wetzel," said Jack to the elevator man.

"Step inside. He's on the seventh floor."

"Go right in there," said the elevator man when they got to the seventh floor, and he pointed to a door marked *Office*.

Inside the door was a little room with a window, and over the window were the big letters,

INFORMATION

"We have come to see Mr. Wetzel," said Jack to the woman at the window.

"What is your name and what can we do for you?"

"I am Jack Reed. We have come to see bread made. They told us to ask for Mr. Wetzel."

"Wait a minute."

This woman was the telephone operator. She sat at a little table. In the top of the table were many little metal plugs fastened to wires. In a board that sat upon the table, were many little holes. She picked up a plug and stuck it into a hole. That made the telephone bell in Mr. Wetzel's room ring.

The telephone operator. Tell how she does her work?

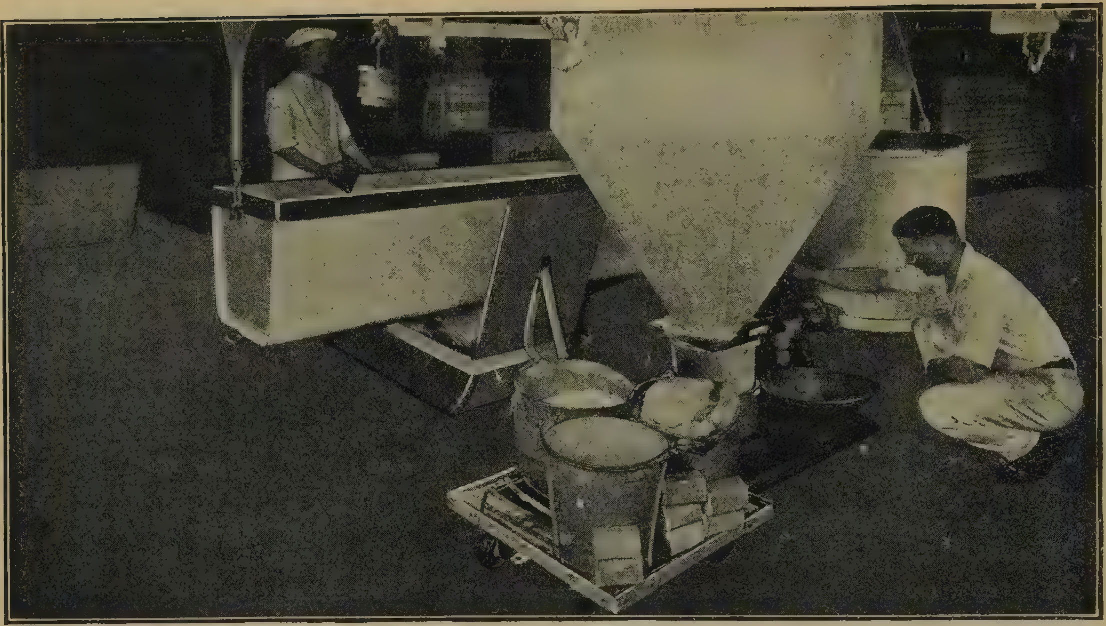
"Mr. Wetzel," said the telephone operator, "Jack Reed is here to see you. He brought some friends along to see how we make bread."

In a moment Mr. Wetzel came out and greeted them. There were seven other people who wanted to see the bakery.

"Come this way, please," said Mr. Wetzel. "We shall go down to the lower basement to see the very start."

THINGS TO THINK ABOUT

1. How many stories high is the bakery near your school?
2. Why was the bakery man glad to have people see his bakery?
3. What does a telephone operator do?
4. Where is the central telephone exchange nearest your home located?



Flour, milk, yeast, lard, salt, sugar, and water are used in making bread. Point to the man in the picture who is measuring the materials for a batch of dough. The flour comes down the big funnel.

MAKING A LOAF OF BREAD

As you read this, be sure to look many times at the illustrations on pages 144 and 145 so that you will understand how the bakery is built.

When they reached the basement, Jack and Joe were very much surprised to see two freight cars. The railroad tracks ran into the basement of the bakery.

One of the freight cars was filled with barrels of condensed milk and the other was filled with sacks of flour. Three men were unloading the sacks of flour on to little four-wheeled hand trucks and piling the flour near a noisy machine that Mr. Wetzel called the *bolter*.

A man was dumping sacks of flour into the bolter. The bolter kept saying, "Grutchy, grutchy, grutchy, grutchy." It was the business of the bolting machine to shake the flour through a big sifter. The sifter had cloth in it near the bottom.

The flour was shaken through the cloth of the sifter. Then it fell into little pockets on a moving belt. Away went the flour on this belt. It did not stop going until it went all the way up to the seventh floor—the top of the bakery.

"Joe," said Mary, "wouldn't it be fun to show mother that big sifter? Her sifter seems like a toy beside this.

"I wonder where the flour is going in those pockets?"

"Let's follow it and see," said Mr. Wetzel.

They all crowded into the freight elevator along with two barrels of condensed milk.

In half a minute they were at the seventh floor. Mary was very much excited to see the flour as it came upstairs in the pockets of the moving belt.

"That is the flour's elevator, isn't it, Mr. Wetzel?" she asked.

As the moving belt turned over a wheel the flour dropped from it into *another* bolting machine.

"We want to get all the lumps out of our flour and get it as clean as possible," said Mr. Wetzel, and he opened the box of a bolter that was not running just then, to show them how fine the bolting cloth was.

"All the flour has to go through that cloth," he said. "It is made of silk with very strong fine threads."

On the floor below he took them into the cold-storage room. That made them shiver, for it was as cold as ice. The children were to learn more about cold storage when they visited a cold-storage plant. They stayed in the room only long enough to see barrels of condensed milk, barrels of shortening grease, boxes of yeast, and rolls of waxed paper.

The weighing room was near to the storeroom. The man who did the weighing had fastened on the wall a printed list of the amount of things that should be mixed together to make bread: so much flour, so much shortening, so much condensed milk, so much yeast, so much sugar, so much salt, and so much water.

"We don't trust to luck here," said Mr. Wetzel. "Watch those scales."

The weigher set his scales at one hundred twenty pounds because he needed that much flour. Then he pulled a handle. Flour began to run into the big hopper (or bin) on the scales. The flour came from the bolter room upstairs and ran through a hole in the ceiling. It fell into the hopper of the scales. Just as soon as one hundred twenty pounds of flour had run into the hopper the weighing machine shut the hole that the flour came through.

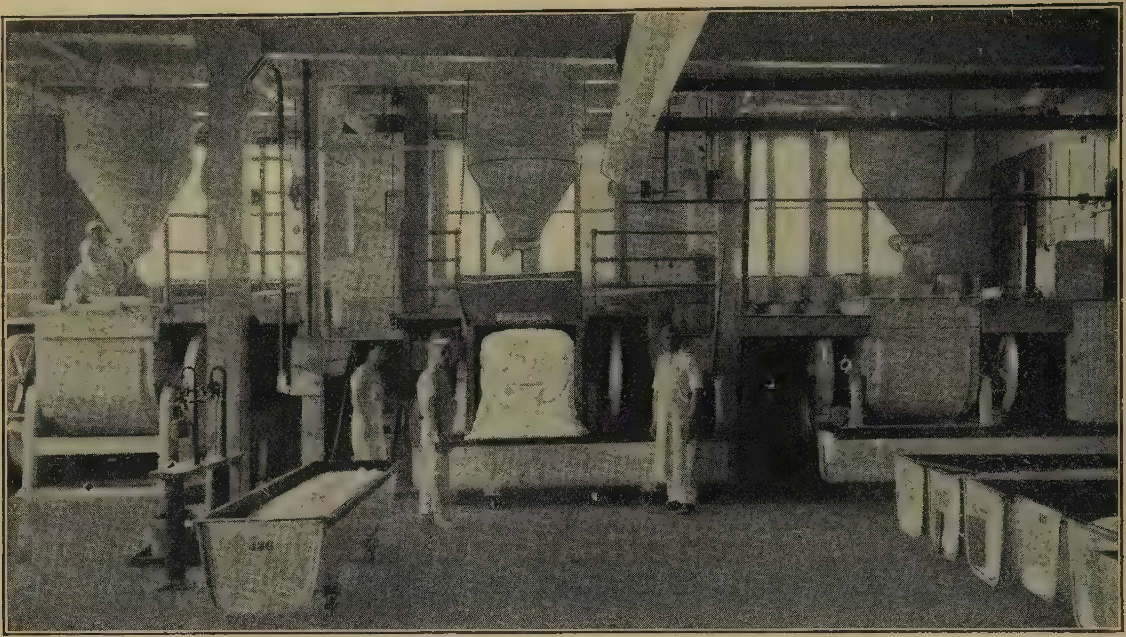
Then the man weighed all the milk, salt, yeast, and water for one lot of bread and put them into another big tin hopper.

"Mary, is that the way your mother measures the things for bread?" asked Mr. Wetzel.

"No, indeed," said Mary. "She uses a quart cup for measuring. But if she made this much bread at a time she couldn't use her cup, could she?"

"Buzz-buzz," went a little bell. The man in the mixing room downstairs was signaling to the weigher. The weigher pulled a handle. All the flour in the hopper slid into a tin spout that went through a hole in the floor. He pulled another handle. This allowed all the grease and milk and water and other things in the other hopper to fall through another tin spout into the mixer in the room below.

"This bread seems to spend most of its time falling through the floor," remarked Jack, as the visitors hurried downstairs to the mixing room to see what would happen next. There stood the mixer man in a clean white suit. He was looking at a big



Dough for more than one thousand loaves of bread dropping from the dough-mixing machine into troughs to rise.

white box up near the ceiling of the mixing room. It was almost as large as a truck. The flour and the other materials from the floor above had dropped into this big box.

When the things had all slid into the box, the mixer man pulled a handle and a big lid slowly shut down on the box. Nearly everything runs by electricity in the bakery. The men pull handles or push buttons and electricity does the work.

The mixer man touched another button and the big box began to turn over and over. At the same time steel arms inside of it turned round and round and mixed everything together. This machine turned and mixed, turned and mixed, turned and mixed, for quite a while.

When the dough in the mixing machine was mixed enough, the man again touched a button. The machine stopped. He touched another button. The box opened. He pushed another button, the steel arms gave a twist, and a huge lump of dough as big as two men tumbled out with a "floop, floop" sound. It fell into a long trough that stood ready to receive it in front of the mixing box and ran on tracks.

In some bakeries these troughs are swung on overhead tracks which run from room to room, in others they are mounted on wheels or casters, as in the picture above.

"There is dough enough for 1300 loaves of bread," said Mr. Wetzel.

Joe looked around and saw twenty of these troughs. They were nearly as large as wagon bodies, and most of them were full of dough. The dough had to stay in the troughs for hours to get light or "rise."

A chute full of dough which the dividing machine is cutting into loaves. See the six pieces of dough. More and more people are buying their bread from the bakery instead of making it themselves.

The mixer man walked over to a trough in the middle of the room. He pulled out a handful of dough. He looked at it. He felt it. He wanted to see if the yeast had made the dough rise and ready to be baked.

"That's ready," he said. Then he pushed the trough along until it stood over an iron door in the floor. He pulled a handle and the iron door in the floor opened. He then pulled a handle in the bottom of the dough trough. That handle opened a door in the bottom of the trough. "Flip, flip," went the dough as it dropped through the open door in the bottom of the trough and fell down the hole to the room below.

"Joe," said Mary, "I shall not be happy until Mother visits a bakery and sees what happens to the dough. It's too funny! I shall tell Mother in my next letter that in a bakery a man just walks around, touches buttons, and pulls handles that send everything for 1300 hundred loaves of bread through holes in the floor to the mixing boxes. She will think that I am joking."

Mr. Wetzel called the party to go down to the next floor. There they saw a big machine called a divider. The big lump of dough had dropped through an opening in the ceiling into the dividing machine. "Clockety, clockety, clock," said the machine. With every sound it dropped out six lumps of dough. The divider weighed the dough as it cut the pieces off, so that the lumps were all of the same weight.

The lumps of dough fell upon a moving belt. The belt carried them along and dumped them into another machine. This machine (called a shaper) shaped the lumps into loaves

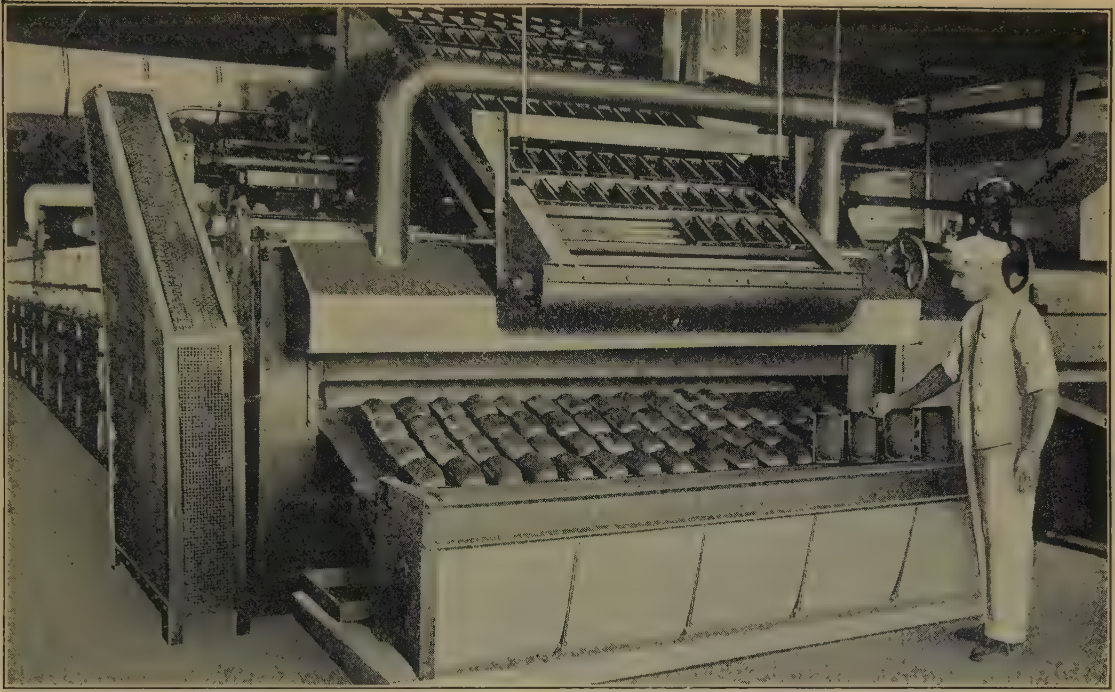
Rolling some bread into the steam room to rise.

and dropped the loaves into pans. One man did nothing but grease the pans. He had a bucket of melted grease which he spread over the pans with a big cloth. Another man pushed the pans into the machine. The shaper kept on and on, dropping loaves of dough, six at a time, into the pans as they rode past on a moving belt.

The pans with loaves in them rode away on a belt to the steam box. The steam box was a low room. It was made very hot with steam pipes. As the loaves rode slowly through the steam box, the dough got lighter until soon it was ready to be baked. The loaves rode on from the steam box into the oven where they were baked.

Nearly everyone eats bread or something like it. Some of the foods that are very much like bread are potatoes, bananas, corn-meal mush, oatmeal, and other cereals. The story of making bread by machinery shows how we are learning to make machines work for us.

Look at the picture on the next page which shows Indian women baking bread in an outdoor oven. Compare their way of baking with the story you have just read. Yet your grandmother's way of baking bread was not so very different from the Indian way. She had to start making her bread the day before it was baked. She mixed the flour and milk and yeast and other things and put it in a warm place to rise over night. Next morning she kneaded it, made it into loaves, and put it in baking



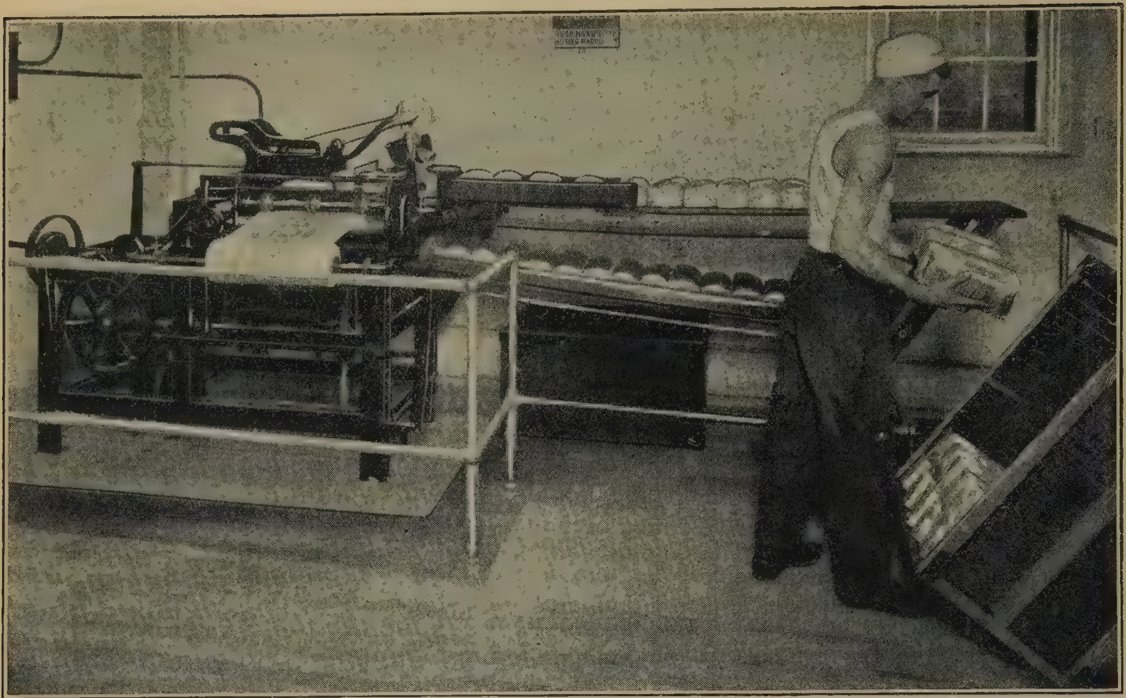
Here comes the bread from the ovens. The empty pans are carried back to the other end of the oven on the carrier at the top of the picture.

Indian women baking bread.

pans to rise again. When it had risen enough, she put it into the oven. After all her work her bread probably cost more than the bread your mother buys from the baker.

THINGS TO THINK ABOUT AND DO

1. Tell what you can about making flour.
2. Get a spoonful of flour and wet it. Rub it between your fingers. What do you notice about it?
3. We have read about someone in this book who might have grown the wheat that made this flour. Who was he?
4. Someone might have taken milk to the condensed milk factory that sent milk to the bakery. Who was he?
5. Name all the things you can think of that electricity does for us.
6. Did you ever see anyone make bread? How many loaves were made at one time?
7. Why do you think machines can do things cheaper than men?
8. Tell about some things that men can do that machines cannot do.
9. If Mrs. Brown and other people make bread better than machines make it, why do we have machines to make bread?
10. Pretend that you are a grain of wheat. Tell about your life on the wheat farm, in the flour mill, at the big city bakery, in some child's home.



All by itself this machine takes loaves of bread and wraps them in paper. What is the man doing? Why should bread be wrapped?

BAKING THE BREAD

Ask someone who knows about bread making to tell you what it means for bread to "rise."

Mary saw the loaves go into the steam box. She saw them come out without stopping. She knew enough about making bread to see that the loaves had grown as much larger (raised) in that twenty minutes in the hot steam box as they did in two hours on the kitchen table at home. When her mother made bread, she always let it remain in the pans with a cloth over it for several hours, or even all night. She did this so that the dough might rise before being baked.

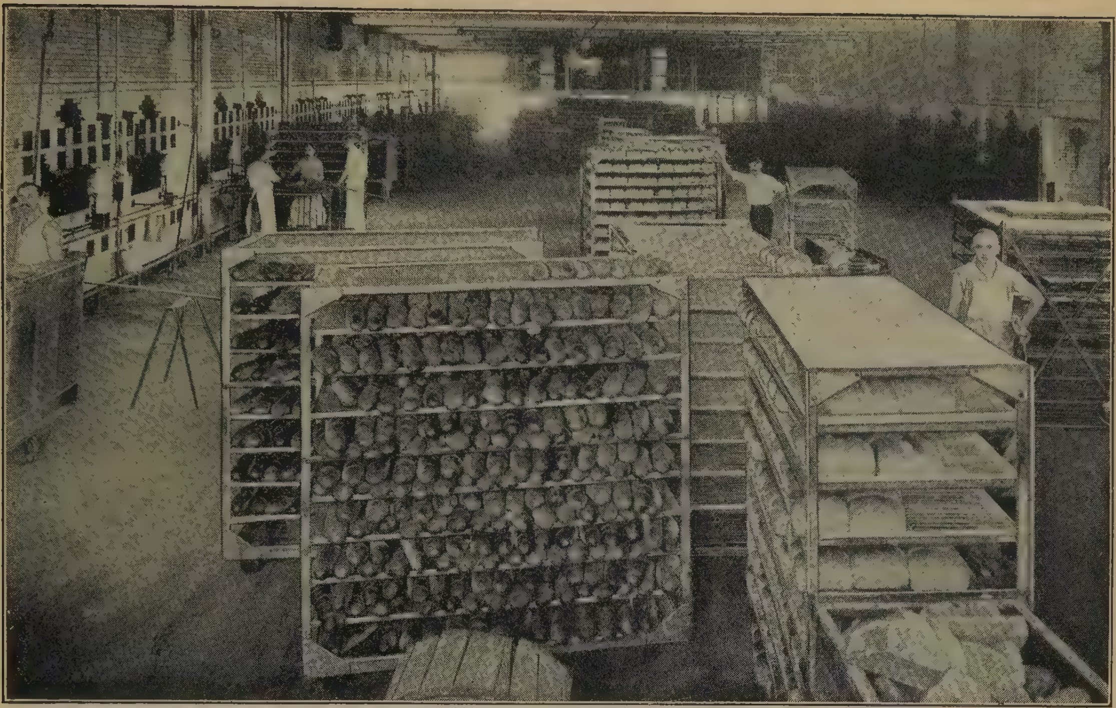
The oven in the bakery was over two hundred feet long. That was more than twice as long as the Browns' barn. This long oven was heated by many little flames of gas all along its entire length.

The bread never stopped moving while it was baking. It was on endless belts of steel chain. It rode in at one end of the oven. It rode slowly through the long oven. It rode out at the other end. All this took about forty minutes. It went in in a steady stream. It came out in a steady stream.

Forty-four loaves of nice bread came out of that one oven every minute.

If the baker wanted the bread to stay in the oven longer, he changed something that made the bread travel more slowly.

Two men stood at the end of the oven. They turned the bread out of



Racks of bread ready for the delivery wagons.

the pans. It kept them busy, too. They put the empty pans on a moving belt. This carried the pans back to the place from which they had started. The pans were greased again and more dough was put into them before they were sent through the oven again. Thus everything kept going round and round and round.

The men who emptied the pans dropped the bread through a hole in the floor. Again Jack and his party hurried downstairs to see where the bread had gone.

In this room the bread rode slowly back and forth on cooling racks until it was cold. Then it fell on a moving belt. This belt carried it to the wrapping machines.

These wrapping machines seemed almost to have hands. They took the loaves one after another. They wrapped each loaf in paper, sealed it tight to keep it clean, and then dropped it on to a chute. The loaves slid down the chutes through holes in the floor to the story below.

In this lower story the loaves slid down to the man who packed them in boxes ready to go away. Jack had often seen those boxes at the store. Trucks were standing there ready to receive the boxes of bread and rolls. Some were to go to the New York stores. Some were to go to the railway station to be shipped to the small towns near by.

Machines! Machines! Machines! They had done all of the work of making the bread and baking it. No one handled the bread except the packer. The bread was even wrapped in paper before it reached him.

"This is the largest bakery in the world," said Mr. Wetzel. "It works all day and all night. It has three shifts of workers. Each shift works eight hours. It makes 180,000 loaves of bread every day except Sunday, and it takes only 800 people to make it and deliver it to hundreds of stores. That is more than 220 loaves for each worker during his eight hours of work."

"My, my," said Mary, "I make only eight loaves at a time and it takes me such a long time!"

"Yes," said Mr. Wetzel, "that is one reason why so few of the people who live in large cities have home-made bread. Another reason is that city people live close to the stores and can buy food every day.

"In our bakeries we make a great many loaves of brown bread. We make one kind that has the bran, the germ, and every bit of the wheat grain in it. That bread is very good to make children's teeth and bones strong. We make a lot of cake and rolls too, over in the other side of the building."

They then went down to the first basement. Most of it was full of paper boxes and tools to be used in repairing the machinery. In one corner a man stood by a big truck full of bread. He was throwing the bread into barrels. This was stale bread that had come back from the stores. The bakery sent stale bread to the country to be used for pig feed. The stale-bread man was putting all kinds into one barrel, rolls, short loaves, long loaves, white bread and brown bread.

THINGS TO THINK ABOUT

1. Why do they let the bread go through holes in the floor?
2. If your mother bakes bread, ask her how many loaves she could bake if she did nothing else all day.
3. How many loaves does each person in the big bakery make?
4. Get a few grains of wheat and let them sprout in a warm, damp cloth. This will show the germ, which is taken out in making white flour.
5. Try to find out how bread was baked when people in this country used Dutch ovens. Ask an old neighbor to tell you.
6. If there is a mill or a factory near the school, perhaps your teacher will take you to see it. See if you can follow the products of the mill through from beginning to end as we followed the flour from car to baker's wagon.
7. Tell what kind of bread is best for making people grow.

A TALL BUILDING

If you have ever been on a high building and looked down, you may think about it after you have read this story.

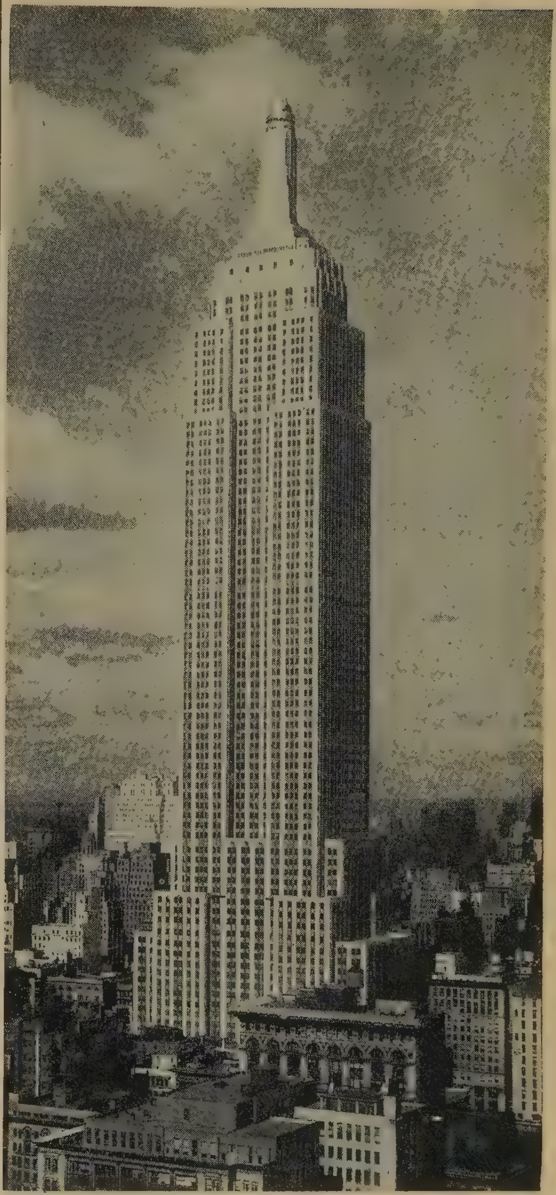
The Empire State Building was one of the things that Joe wanted to see first when he got to New York. He had seen a picture of it. Jack said that it was 1250 feet high — almost a quarter of a mile. Well, if that were true, he wanted to have a look at it. He wanted to see the tallest building in the whole world.

One day at school in the country the teacher had helped the boys to measure 1250 feet down the road. They wanted to see how far up in the air men had built a building. When they had measured it, the distance seemed so far that it was hard to believe that a building could be so high.

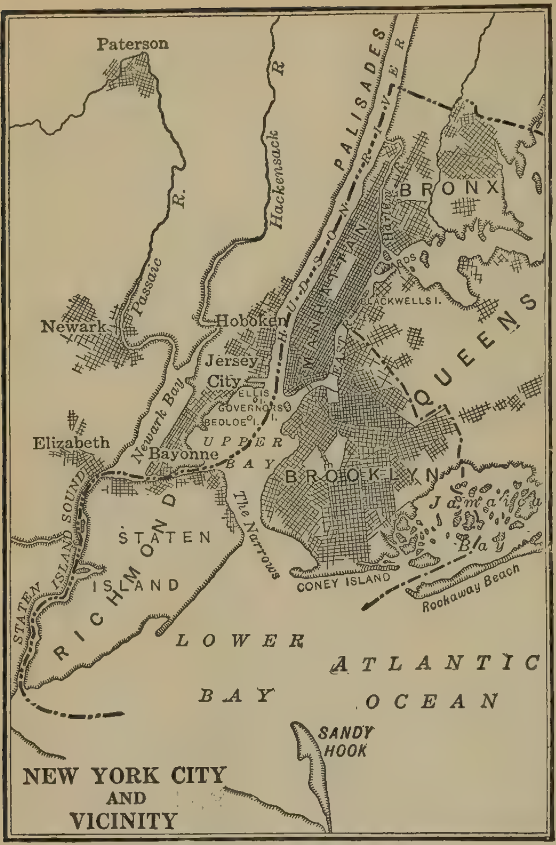
The boys went in the subway from Jack's home to the Empire State Building. The subway offered a new kind of travel to Joe.

When there were so many people in New York that they could not all ride in trolley cars, the people built elevated railways. Then the number of people grew so great that some other way to carry them was needed. The only thing to do was to put railroads underground, so they did that. In New York you go down steps in the sidewalk and there is a station and an electric railroad. Sometimes these railroads have two tracks and sometimes they even have four tracks.

It took half an hour in the subway for the boys to reach a station called Thirty-second Street. Here they left the train and climbed two flights of stairs to reach the sidewalk. Just a short walk brought them to the Empire State Building, at



Read the story, find the name of the tall building, and tell about it.


Paterson
Hackensack R.
Passaic R.
PALISADES
HUDSON RIVER
BRONX
BLACKWELLS I.
QUEENS
Newark
Hoboken
Jersey City
ELLIS I.
GOVERNORS I.
BEDLOE I.
UPPER BAY
Elizabeth
Newark Bay
Bayonne
BROOKLYN
Jamaica Bay
STATEN ISLAND SOUND
STATEN ISLAND
RICHMOND
The Narrows
CONEY ISLAND
Rockaway Beach
LOWER BAY
ATLANTIC OCEAN
SANDY HOOK
NEW YORK CITY AND VICINITY

A map of New York, where Jack lives.

Fifth Avenue and Thirty-fourth Street.

Inside the building they saw a row of elevators. Over the door of one was this sign: Express to Eightieth Floor. The boys stepped into the elevator. The operator shut the door and away they went, up, up, up. They went past floor after floor almost as fast as a train of cars runs.

As they whizzed past the floors, Joe asked Jack how many stories there were in the building. Jack replied, "There are one hundred two above the street and two below." The boys got off at the eightieth floor. Joe had been holding his watch all this time. He found that it had taken less than a minute to go from the first floor to the eightieth.

Here they found another elevator that carried them up the tower to the eighty-sixth floor. There they changed again and rode to the one hundred second floor. Here is the highest observation tower of the building.

At the top of the building there is a mooring mast for dirigibles. And at the highest point, 1265 feet above the street, there is a weather observation apparatus.

From the top of the tower the people in the street looked so small that one could not tell what color they were.

"People down there look like ants walking on their hind legs," said Joe.

"Yes," said Jack, "and the automobiles look like beetles crawling along and the trolley cars look like fat, yellow caterpillars."

"Why, there's a horse and wagon!" said Joe. "It looks like a tiny toy from a little Noah's Ark."

The boys looked across the river and saw another city. That city is named Jersey City. They looked across a river in the other direction. This river is called the East River. The city across the East River is named Brooklyn. They also saw a wide stretch of water called New York Bay.

Joe liked to watch the boats go up and down the river and back and forth across it. He had never dreamed that there were so many kinds of boats.

A view from the top of a high building. Can you find two islands and some boats? How many stories do you see on some buildings? At the right are the docks where the ships come in.

There was one low flatboat which had three rows of freight cars on it. Joe wanted to ask questions and a man stood near who seemed to know a lot about New York.

"Oh, that is a car float," said the man. "These car floats carry freight cars everywhere in the harbor. This city is on an island, you know. Most of the railroads end on the other side of the river. The loaded freight cars run right on to the floats, which have tracks on them. The floats carry the cars across to Manhattan and to Brooklyn."

Then the boys watched the car float as it stopped beside one of the long, low sheds which had been built into the river.

"That is Pier 20," said the man. "That is where they sell fruit. Those cars are loaded with fruit. Some of them have come a very long way. You ought to see them unload the cars and sell the fruit. It is the noisiest place you ever have heard."

THINGS TO THINK ABOUT

1. How many seconds in one and one-fourth minutes? Let the class be silent for that length of time.
2. Tell how long it took the boys to ride from the first floor to the eightieth. At which floor did they go out on the observation tower?
3. Have you ever been on the top of a high building? Perhaps the teacher will ask you to tell the class about it.
4. How would you measure 1250 feet down the road or street from your schoolhouse door or gate?
5. Name the different kinds of boats that you think the boys saw from the Empire State Building.
6. How many kinds of transportation in New York have you read about in this story?
7. How tall are you? How many children as tall as you, standing on top of one another, would reach to the top of the Empire State Building?

Boxes and boxes of fruit on a fruit pier for the buyers to examine before the fruit auction is held.

A PIER WHERE FRUIT IS SOLD

When you have read this story carefully, perhaps you can get some small boxes and imagine that you have a fruit warehouse.

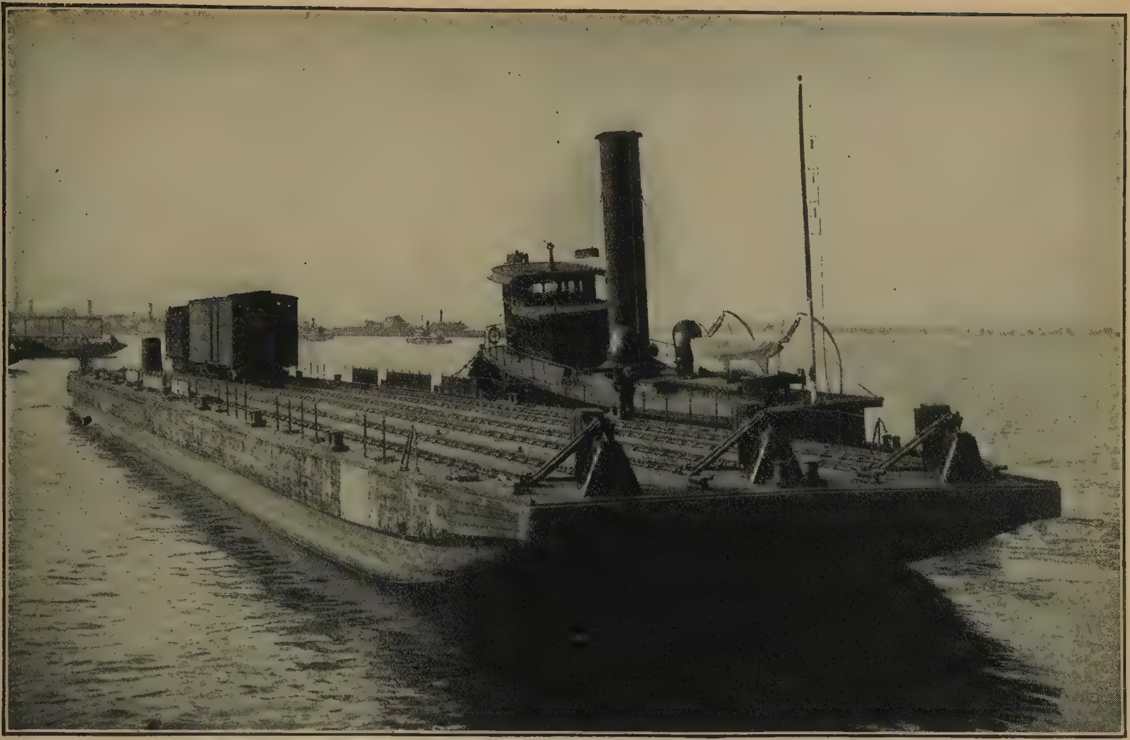
At eight o'clock the next morning Jack and his father and Joe reached the fruit market. It was in a huge shed on one of the piers on North River.

The boys had seen the sheds from the top of the Empire State Building. From that great height the sheds did not seem so very large, but when the boys were inside a pier shed it seemed too big to be a building at all. The posts which held up the roof seemed like the trunks of trees. It was almost as if they were in a great forest of high trees. Men at the far end of the shed looked like small boys. Joe said that he believed that there was room enough inside that shed to put his father's house and barn and all the houses and stores in the village.

"Yes," said Jack, "and there would still be room for more."

The shed was piled high with boxes of different kinds of fruit. Down the middle of the shed was an open space as wide as a street. On each side of the open space were piles of boxes. There were boxes of apples, boxes of oranges, boxes of grapefruit, boxes of lemons, boxes of cantaloups, boxes of cherries, boxes of pineapples. Some of the boxes were open so that the buyer could see the fruit.

Each pile of boxes was big enough to fill a freight car. There were more



The tug pushes the car float. The car float carries cars about the harbor.

than two hundred piles in that big, long shed.

The boys read the labels on the boxes as they walked along. They heard the voices of many men, and the rumble, rumble, rumble of a strange sound. It was the sound of many small trucks which ran on wheels and were pushed around by workmen. A gang of men was busy unloading a car of oranges. The men kept going so fast that there was a steady stream of them coming out of the car, each man pushing his truck loaded with boxes of oranges. Another stream of men rushed back with empty trucks.

At the door of the car stood a young man with a book and a pencil in his hand. He was called a checker. He was counting boxes. For every box of oranges which went out of the car the checker made a mark. The fruit grower who shipped those oranges to New York put 457 boxes into the car. The agent at the railroad station had given him a ticket or receipt for 457 boxes. Now the checker was counting them for the truck men. If the boxes were not all there the railroad would have to pay for those which had been lost.

"Here is a good chance to see the harbor," said Jack as they passed a large open door.

"I've often read about harbors," said Joe. As they stood looking through the doorway at the water and the boats, Mr. Reed told them that a harbor is the quiet water near the city where ships come and go. In harbors the wind does not have enough room to make big waves and bounce the ships around as it often does in the open sea.

They stepped from the shed to a flatboat, such as the boys had seen from the tower. This boat was called a car float. Such boats are used to carry many hundreds of freight cars from one pier to another in New York every day of the year.

As they were walking about on the car float, the boys saw that the cars were full of boxes of oranges. Joe looked down under the pier. He was surprised to see that it stood on posts. Each of these posts was the trunk of an oak tree. Joe was used to oak trees growing on the land. It made him laugh to see tree trunks standing in the water.

"The trees must be homesick," said Mary. "How did they get them there?"

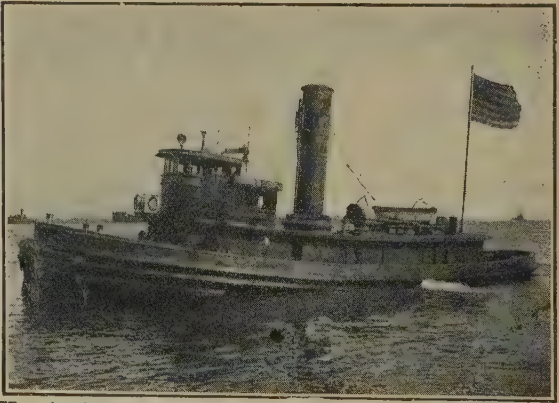
"Each log was driven down into the mud at the bottom of the river by a big machine called a pile driver," said Mr. Reed. When logs are driven down into the mud in this way, they are called piles. They are strong enough to hold up great wharves and docks and buildings.

When the boys went back into the freight shed, they saw some men quietly walking around among the many heaps of boxes of fruit. Sometimes they opened boxes to examine the fruit. The men had little books in their hands. Sometimes they wrote something in the little books.

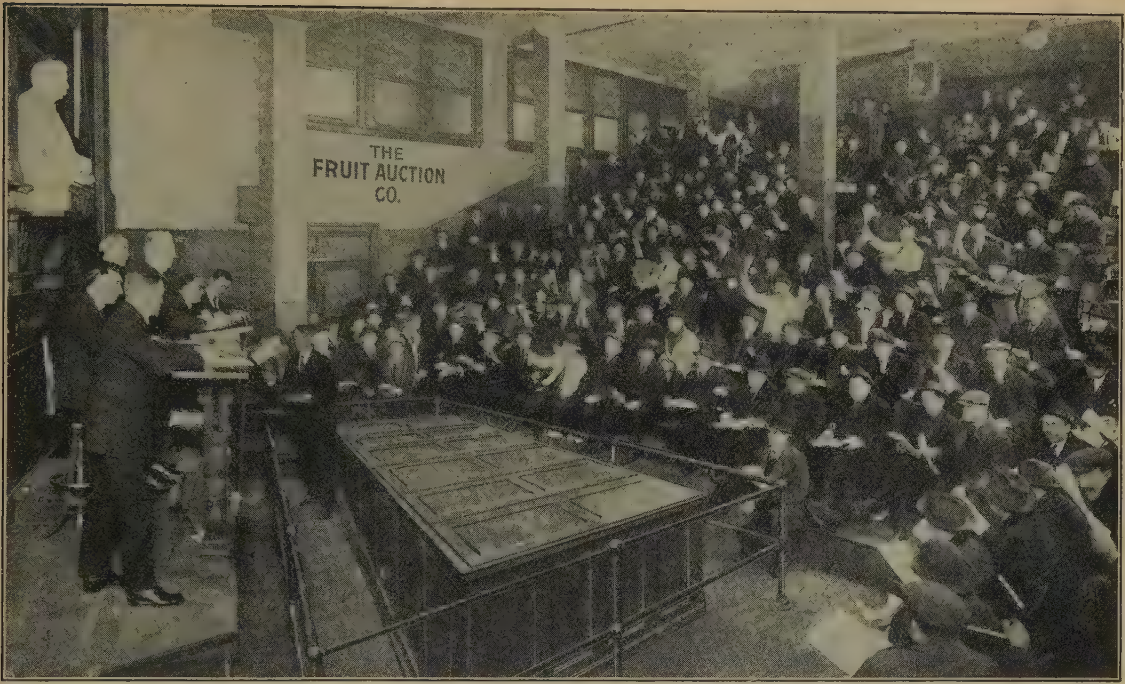
These men were getting ready to buy fruit, so they looked at the numbers which were on each pile of boxes, and made notes about the fruit in their note books. Every morning, except Saturday and Sunday, there is a sale or auction of fruit in an upstairs room. First the buyers look at the fruit in the shed. Then they go to the sale or auction to buy what they want.

THINGS TO THINK ABOUT AND DO

1. Find out how long a freight car is. How wide is it?
2. How long and how wide is your schoolroom? How many freight-car loads of fruit or other freight would it hold if it were piled no higher than it is in freight cars?
3. Try to make a model of a harbor in the school yard or in a box of sand. How can you put ships in it? If you cannot make a model, perhaps you can make a little drawing of a harbor with ships in it.
4. Bring to class some pictures of harbors and ships.
5. Perhaps the storekeeper will tell you where the oranges which he sells are grown.
6. Do you know anyone who has to check over lots of things to keep his accounts correct? Tell about him.



Hundreds of these strong little boats are found in harbors. They push and pull other boats about the harbors.



A fruit auction. After you have read the story, tell what these men are doing.

A FRUIT AUCTION

After you have read this, think of all the ways of selling things that you know about.

The boys found the fruit auction to be an interesting place.

The man who has charge of the sales is called an auctioneer. He sat at a table on a platform and his clerk sat beside him. Dozens of men sat in seats in front of the auctioneer. He banged on the table with a wooden mallet to make them listen.

"Page 2 of the list," he called out. "Lot No. 27—457 boxes of oranges, Perfection Brand. How much? Who makes a bid?"

"Two-fifty," said one man.

"Too low," said the auctioneer. "Make a real bid. You know these are fine oranges. You've seen them. How much for the oranges?" he called.

"Three," said another man.

"Three-fifty," said the first man.

"Four."

"Four twenty-five."

"Make it fifty," said the auctioneer. "Make it fifty, fifty, fifty. Nobody bids fifty?

"Jake, you bid," cried the auctioneer. "Four twenty-five. Who bids forty? Going, at four twenty-five. Going at four twenty-five. Going—going—*gone* to Anton Malatesta." The auctioneer's clerk wrote in his book the name of the purchaser and the price that he had bid.

"How many do you take?" said the auctioneer. Each lot is a car load. The bidder does not have to take all of a car load unless he wants to, but he must take at least sixty boxes. This is the rule of the auction.

"A hundred," said Mr. Malatesta.

In a flash ten or fifteen men jumped to their feet and called to the auctioneer. Some waved their papers in the air. Two of them climbed up on the fence in front of his table and almost poked their papers in his face.

Each of them was trying to get the auctioneer to sell him some of the same lot at the same price that Mr. Malatesta had bid. This is one of the rules of the auction. As there were not enough oranges to go around, the people who spoke first got first choice. That is why they all called at once.

In a few seconds the clerk had the 457 boxes of oranges divided among seven buyers.

"Lot No. 28," cried the auctioneer. "Grapefruit—Sweetgrape brand." And the bidding started again. It kept up for hours. It kept up until the two hundred car loads of fruit had all been sold.

As soon as Mr. Malatesta got the bid on the 100 boxes of oranges he went over to another table where sat the agent of a truck company. Mr. Malatesta told the truck agent to haul the 100 boxes of oranges to his store in Washington Street.

The boys had seen these oranges unloaded from the freight car. They had seen them sold, and now they wanted to see where they went. Jack asked Mr. Malatesta if they could visit his store. He said they could, but that the best time to see it was two o'clock in the morning, when Washington Street was really busy.

Two o'clock sounded very early, but the boys thought it would be fun to see the city in the middle of the night. Jack's parents thought that nothing would happen to them and said they might go.

THINGS TO THINK ABOUT AND DO

1. The auction is one of the ways in which men try to get the best price for things they have to sell. Select some member of your class as auctioneer and have him sell fruit to the rest of the class who are bidders. Let him imagine that he has a complete stock of fruit. Each one should try to get a complete stock of fruit for his store. Each one should start with the same amount of money. The class may decide who is the best buyer.
2. What things are sold at auction near your school?
3. Why do more than 200 car loads of fruit have to be sold the day after they reach New York?
4. What fruit is grown in your neighborhood to sell?
5. Suppose that a January freeze spoiled all the oranges in the United States. How would it affect the fruit auction in New York?
6. Suppose that there was a spring frost that destroyed apple blossoms. Would the school children have as many apples to eat? Why?
7. Ask your teacher to show you on a map where the principal fruit-growing places are located.
8. Here is a good game. Let each member of the class make a list of fruit helpers. Put in this list every person who has done anything to help you by helping to grow an orange and to get it from the tree to your hand. In making up this list you must not forget that nearly all of the people who helped with the orange had to use tools.

This wide street is along the docks from which the steamers sail. Sometimes it is so choked with automobiles and trucks that none can move for an hour or more.

A MIDNIGHT MARKET

If you have never visited the wholesale fruit market of a city, you must be sure to go the first time you get a chance.

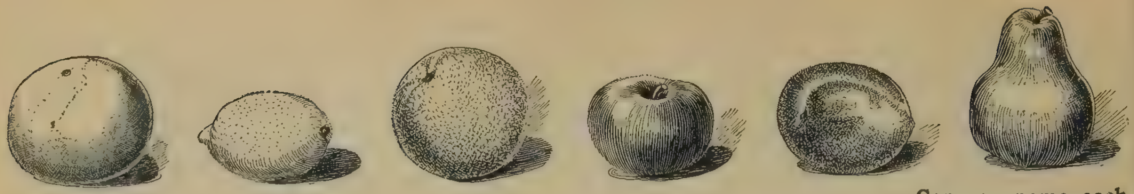
The next morning at one o'clock the alarm clock went off with a bang. Jack did not hear it, but Joe did. The boys dashed cold water into their eyes to get out some of the sleep. It was not long before they were on the subway train that goes toward Washington Street.

The train had five cars, and they were nearly filled with people. That was a surprise. There was a boy walking back and forth selling morning newspapers. Joe wondered if people in New York ever went to bed.

The boys passed nine subway stations before they got off. Then they walked through streets where every building was a store or a factory, and every door and window was dark. Joe said that the street lights made it seem as if he were walking out to the barn with a lantern. After a few minutes they came to Washington Street. Here everything was light and bright. Here everybody was busy at two o'clock in the morning.

"My," said Joe, "wouldn't father be surprised at this? Everyone we know is asleep in bed at this time of night—that is, unless there is a sick horse or cow to be doctored."

Washington Street was the place



Can you name each

where New York storekeepers went to buy their supplies of fruit and vegetables.

For six blocks on both sides of the street every store was a fruit or vegetable store. Every store was open, for people were there to buy. The stores were all wholesale stores. A wholesale store sells to dealers and storekeepers, but not to families. If Jack's mother had gone to a wholesale store, the man who kept it would not have sold a dozen oranges or a pound of grapes to her. But the grocer for whom Jack worked went to the wholesale store to buy the grapes and oranges. He bought a whole box, or perhaps a dozen boxes, of fruit, and a barrel of apples and a barrel of potatoes.

Never in their lives had the boys seen such a busy street. The sidewalks were piled higher than the boys' heads with boxes and barrels. There was just room enough for two people to pass on the sidewalk between double rows of boxes of apples, boxes of oranges, boxes of strawberries, boxes of cherries, barrels of apples, barrels of potatoes, sacks of potatoes, sacks of onions, crates of celery, crates of cauliflower.

They crossed street after street, and always Washington Street was brightly lighted, busy with people, and jammed full of things. Such piles of things to eat!

"Who can eat them all?" said Joe. "There is more fruit and more different kinds of food here than there were yesterday at the fruit auction."

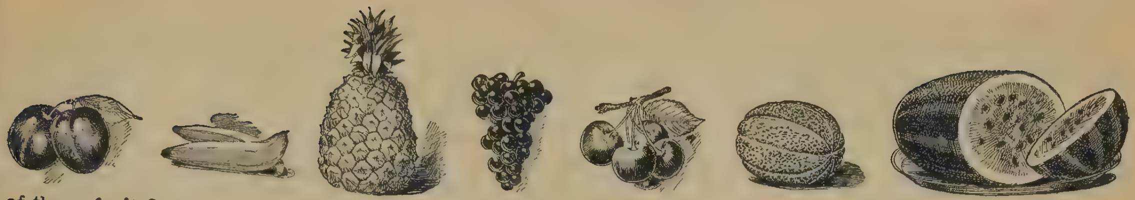
On both sides of the street trucks stood so close together that they almost touched each other. Some of these trucks had come loaded with produce, and men were busy unloading. Empty trucks had come from grocery stores often miles away. The drivers were loading the trucks with barrels and boxes and bags of things to take to grocery stores where they would be sold to housekeepers.

"I hope mother will buy some of those nice looking cantaloups," said Jack.

The street was so narrow that there was barely room in the middle for one truck to creep through between the rows of trucks along the sides of the street. Most of the time the trucks seemed to be standing still, and the boys wondered what was the matter.

"Why don't they go somewhere?" asked Joe.

Just then the boys came to Mr. Malatesta's store. In front of his store stood a truck. Two men were unloading boxes of oranges—the very same boxes that they had seen the



of these fruits?

stevedores unloading from the car the morning before.

The truck driver was angry.

"It took me an hour and a quarter," he said, "to come a block and a half from the dock on West Street. I expected it to take me an hour, but that officer down there at the corner held me up for twenty minutes while he let that mass of trucks come out of the other street."

Now the boys knew why the trucks had all been standing still. The city of New York has grown so very big and there are so many, many trucks that the streets are often packed full of them, so full that none can move for a while. Even in the night it often takes a truck an hour to go a block on Washington Street when the fruit market is busiest.

The stores on this street do not sell much in the daytime, but the street has plenty of trucks passing through from other parts of the city.

While the boys were watching the men unload the oranges and pile them on the sidewalk, Mr. Malatesta's clerk put half a dozen of the boxes into a truck which stood alongside. Jack took a look and to his great surprise saw that it was Mr. Kolb's truck. Mr. Kolb was the grocer for whom Jack delivered goods. Now he knew that he would see these oranges once more, for he would put them in paper bags to carry around to the houses near his home.

Seeing Mr. Kolb's oranges reminded Jack that they must be getting home. Mr. Reed was eating his breakfast when the boys arrived. He was eating an orange. Jack told his father about the boxes of oranges that they had seen.

"These oranges have traveled farther than you boys have ever traveled in all your lives," said Mr. Reed. "They may have traveled for several days and nights before they met you at the market."

"What kept them from spoiling?" asked Joe.

"Ice," said Mr. Reed. "The car was kept cool with ice. I am told that ice has to be put into a car six times after it starts from the Pacific Coast, or from the South."

THINGS TO THINK ABOUT

1. Can you find out what states send apples to the stores of your neighborhood?
2. Where are the wholesale stores from which your retail storekeeper gets his supplies?
3. Ask your teacher to point toward those parts of the United States where oranges grow.
4. How many fruits and vegetables can you think of that Mr. Malatesta might sell?
5. Are there any people in your neighborhood who must work at night? Tell about the work which they must do.

The outside of a cold-storage plant. Why do you think it has so few windows? Look at the windows of the Woolworth Building, page 151. What do the trucks and trains have to do with the cold-storage plant?

A COLD-STORAGE PLANT

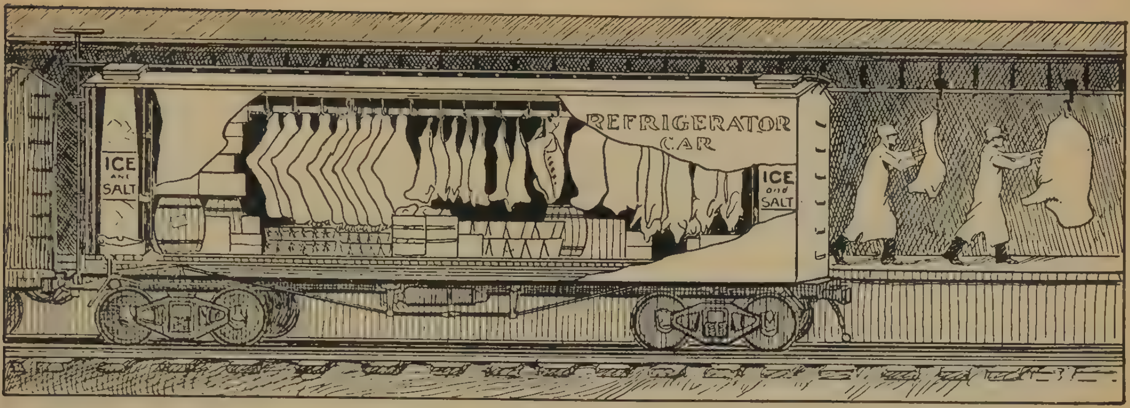
If you do not understand a thermometer, ask your teacher to show you one before you read this story. Be sure that you know what the thermometer does when it is in cold water, and when you blow your breath on it. If possible, pack the lower part of the thermometer in broken ice that has salt on it and watch to see what the column of mercury does.

Joe once heard his father say that the huckster who bought their eggs sent the eggs to cold storage. He wondered what that meant. He was much pleased to find that Jack's father's friend, Mr. Krause, worked in the office of a cold-storage plant.

One day Mr. Krause invited the boys to go through the plant with him. He told them that they must be sure to bring their overcoats.

This cold-storage plant was a building which covered a whole city block. It was nine stories high, and it had almost no windows. Windows let in the heat. This building was built to keep out the heat.

In the basement was a very wonderful machine. It used ammonia to



At the top we look into a refrigerator car. One man is rolling a sheep and the other a quarter of beef into the cold-storage house. Below are firkins of butter going into the cold-storage house.

make salt water very cold. Then the engine, which ran this machine, pumped the cold salt water into pipes. The pipes ran through all the rooms in the cold-storage plant. They kept the rooms very cold, so cold that frost was on the outside of the pipes all the time.

Mr. Krause showed the boys the engine room. Then he took them in an elevator to the ninth floor. This was the egg floor. As he stepped inside the door, Mr. Krause looked at the thermometer.

"Twenty-nine degrees," he said. "That's right for eggs."

Men are going around in that cold-storage plant night and day looking at the thermometers to be sure that every room is just cold enough.

The white frost on the cold pipes in the egg room sparkled like decorations on a Christmas tree. Boxes of eggs were piled from floor to ceiling. They seemed almost like rows of houses down a long street. There were many of these aisles in the one room.

Part of an apple room in the cold-storage plant.

"Thirty thousand boxes," said Mr. Krause, "and thirty dozen of eggs in every box."

"Who will ever eat them all?" said Jack.

"Oh, that's nothing," said Mr. Krause. "You can figure it up for yourself and you will find that we have here only two eggs apiece for every person in New York. You can eat two eggs, can't you? Give each person two eggs, and this roomful is only one breakfast for New York. This is a big city."

The next room smelled very nice, for it was piled high with barrels of apples.

"Thirty-four degrees," said Mr. Krause to himself, as he looked at the thermometer. "Bill is keeping his apple room just right."

The next room had a very different smell, for it was full of celery. Boxes of celery were piled high on top of each other waiting for the grocers to haul them away to the stores.

The cheese room had a wonderful smell.

"No wonder mice like cheese," said Joe. He wanted to open one of the boxes and eat some right away. This cheese had come across the ocean from a little country called Holland. It was very fine cheese, and sold for a high price.

"Now button up your overcoats," said Mr. Krause, as he opened the door to the next room. The boys' breath looked like the cloud which rises from a boiling tea kettle. "Five degrees below zero," said Mr. Krause, as he looked at the thermometer. The boys felt the cold strike at their ears and creep in around the tops of their shoes. They stuck their hands into their pockets to keep them from freezing.

This room had piles of tubs of butter on one side, and on the other side were boxes of chickens. Every chicken was frozen as hard as a board.

The sudden cold kept creeping through their clothes at new places. The boys were glad to get out of doors once more and warm up in the sun.

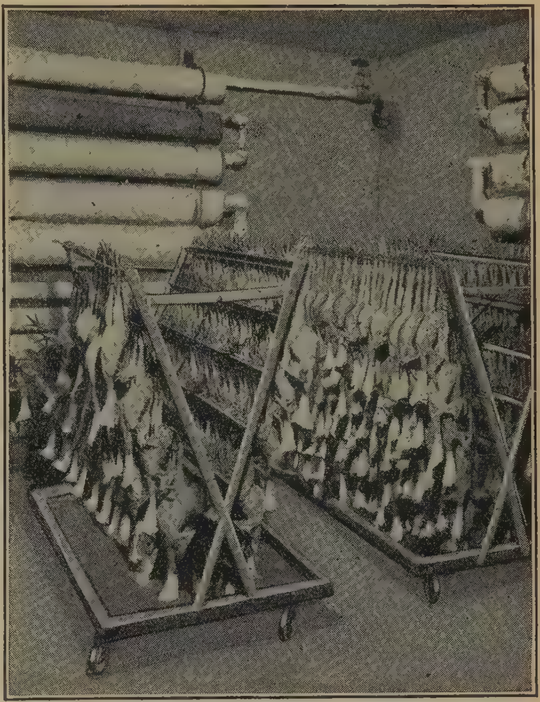
Joe thought: "What fun I'll have when I get back to the school. I'll tell the geography class how the city people keep food from the time it is plentiful until the time comes when they need it."

A large city could not do without cold-storage plants. Apples are ripe in September and October. Some of them would rot by January or February if they were not put into cold storage. In the cold-storage plant they keep until May or June.

When the grass is sweet and juicy in the spring, the cows give much milk. At this time the creameries make more butter than the people can eat. The butter keeps perfectly in cold storage until the next spring when butter is scarce.

THINGS TO THINK ABOUT AND DO

1. What is the temperature out-of-doors today? in the schoolroom?



Chickens being frozen stiff in a cold-storage plant. When frozen the chickens will be stored in boxes.

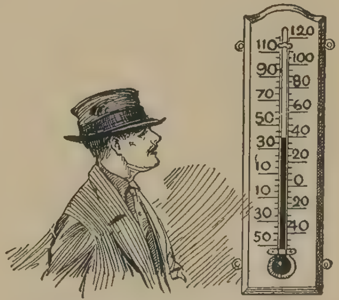
2. Why is it necessary to keep some foods cool?

3. Where else in this book have we read something about keeping food cool?

4. Ask your teacher about some other ways of keeping food, such as salting, drying, and canning.

5. How do you think a cold-storage plant helps us to get more kinds of things to eat?

6. At what time of year do you think there are the largest number of eggs in storage?



Tell about this thermometer.

Tell a story about the things you see in this picture.

BOY SCOUTS, CAMP FIRE GIRLS, AND A HOT SATURDAY

If this story should remind you of some things that you have done, tell about them.

The next day was Saturday. Jack delivered groceries again for Mr. Kolb. Joe went with him for company.

It was a hot day and many people were taking a holiday in the country. The boys saw a group of Camp Fire Girls. They wore uniforms. They had lunch baskets and their leader was with them. The party stopped for a moment at a crossing, and Joe heard the girls talking about Bronx Park, an open fire, cooking dinner, and the zoo. It wasn't hard to guess that the Camp Fire Girls were going to have a pleasant out-of-doors day in the big Bronx Park, where there is a wonderful zoo.

Soon after he saw the party of Camp Fire Girls, Joe saw a troop of Boy Scouts. The weather was hot but each Scout carried a rolled blanket across his back. Some carried big packages that looked like food. Some carried cooking pots and frying pans. These boys were off for a real hike. They were going down to the ferryboat, and cross the North River to a park called Palisades Park. This park is several miles long. The boys were going to climb over the rocky hills and sleep under the trees.

That afternoon it got very hot. As Jack and Joe went along the streets with their push cart, the sun burned them. As they climbed stairways with the heavy packages, they wished that they could get a chance at the swimming hole in the pasture field.

"I'll bet the Stark boys are swimming there this minute," said Joe.

Just then a policeman came along carrying a piece of hose. He stopped

Read the story and tell about this picture.

at a fire plug. A fire plug is a pipe which connects with a water main. A large stream of water gushes from the fire plug. If a house gets on fire, the firemen can attach their hose to the fire plug. The policeman put the piece of hose on the fire plug. He fixed the hose so that water spurted through it like a fountain.

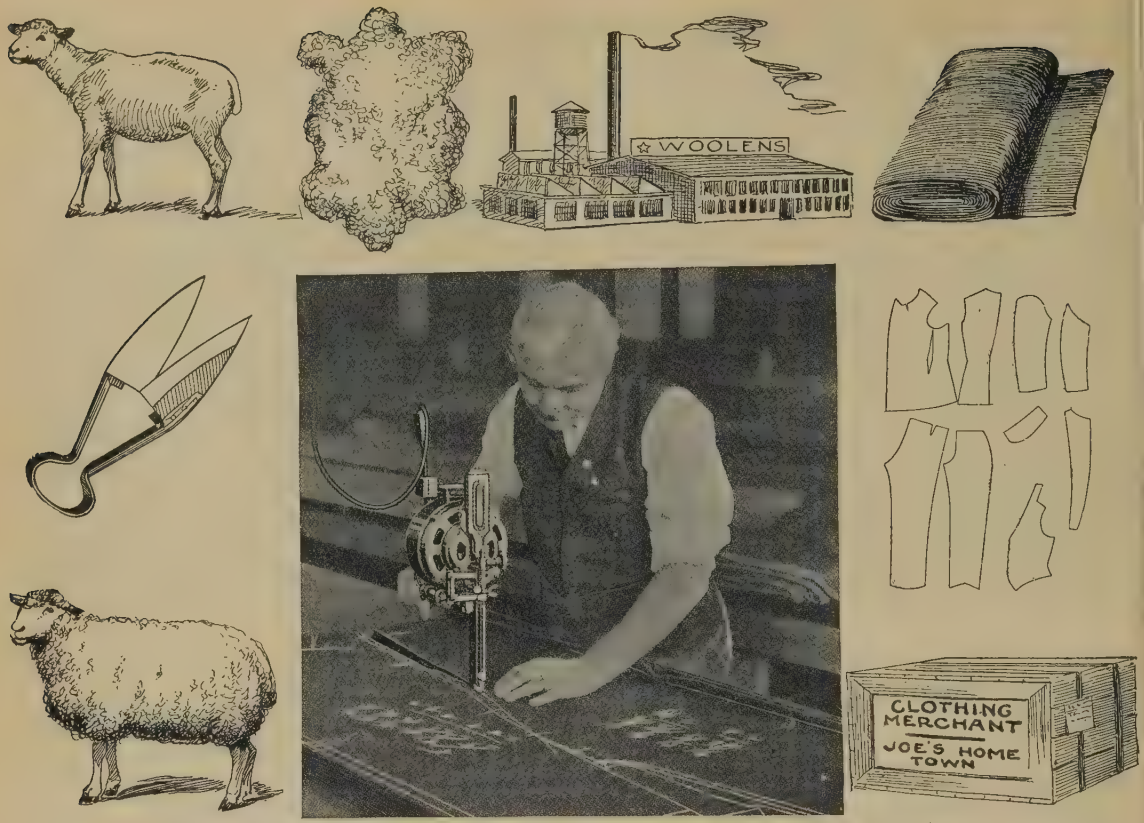
"Hooray! Hooray! Where is my bathing suit?" called three children when they saw the flowing water.

Soon the street was swarming with children in bathing suits. They played and splashed in the cool stream of this fire-plug fountain.

The children in their bathing suits playing in the water from the fire plug were having a much better time than most of the grown people who were in the city. The city was hot. Most of the streets had no shade trees and often there was no breeze. At this time of year thousands of city people go to the country for vacations. Thousands more go to the seashore.

THINGS TO THINK ABOUT

1. What good things do Boy Scouts do for themselves?
2. What good things do they do for other people?
3. If you have ever gone to a zoo, make a list of the animals that you saw.
4. What do you think the Camp Fire Girls took to cook for lunch?
5. Find out what Camp Fire Girls do. Perhaps your teacher will help you. She will get a booklet if she writes to Camp Fire Girls, Inc., 31 East Seventeenth Street, New York, N. Y.
6. She can find out about Boy Scouts by writing to Boy Scouts of America, Fifth Avenue Building, New York.
7. Which do you think was better for the Camp Fire Girls and the Boy Scouts—to go hiking or to go to the movies? Why?
8. Tell about some things that you do to keep well and strong.
9. Pretend you are one of the girls shown in the picture on page 166. Tell about making the camp fire and cooking food.



After you have read this story, see if you can name everything in this picture.

CUTTING OUT A SUIT OF CLOTHES

Some of the girls can tell who made their dresses. Some of the boys can tell who made their suits. Perhaps some boy can tell how a tailor makes a suit. Others can tell where they buy their suits. Perhaps someone can tell where suits are made. Probably some of your suits came from New York. Making clothes is a large industry in that city. Be prepared to tell "The Story of a Suit of Clothes."

Joe had often heard that making clothes is one of the chief industries in New York. Mr. Reed said that more people in New York make their living by making clothes than by doing any other one thing. Joe wanted to see how clothes were made. On Monday morning he and Jack started off down town. They took the letter that the clothing-store man had given to Jack the year before, when he bought the suit of clothes in the country town.

It did not take them long to find the address on Twelfth Street. The office was over a hardware store. They walked up a flight of stairs and there on the door was the name, Goldman & Company. Jack opened the door and handed the letter to the telephone girl behind the railing.

"Here, Ike," she said, "take this to Mr. Goldman."

The boys looked at pictures of suits of clothes on the wall. Joe noticed that the waiting room had no windows to let in the daylight; an electric light was all there was.

"Well, boys," said Mr. Goldman as he came in, "I am glad to see you. You know my friend, Mr. Ford, who keeps a store in the country, don't you?"

"Yes," said Jack. "He sold me this suit of clothes."

"Well, well," said Mr. Goldman. "That suit of clothes was made in my factory." He unbuttoned Jack's coat and showed him a label on it. The label sewed inside the collar read "Goldman & Company."

"See!" said Mr. Goldman. "Now, what can I do for you?"

"We want to see how clothes are made," said the boys.

"All right," said Mr. Goldman. He liked to show a couple of bright boys around his factory. He took them up to the third story in the elevator. They stepped out of the elevator into a big room. Rolls of cloth were piled from floor to ceiling —black cloth, gray cloth, brown, blue, and mixed cloth.

"Let's see you try to lift one of those rolls," said Mr. Goldman.

Jack tried. Then Joe tried, but the roll was too heavy.

"It takes a couple of men to lift one of these rolls. They have to hustle when we get a carload of cloth from the woolen mills.

"Now take that suit you're wearing," and Mr. Goldman pointed to Jack's neat blue suit. "Somebody had to decide whether it should be a straight coat or a Norfolk jacket, didn't he? Well, the man who does that is called the designer. He thinks of styles and has a suit made as a sample. If it is a good kind of suit, then we can sell more like it. To get other suits that are like the sample we have to rip the suit very carefully apart. Then a paper pattern is made just the same size and shape as each of those pieces. I suppose you have seen your mother use a pattern? Well, we do not use patterns in quite the same way.

"Come on and see the pattern maker," said Mr. Goldman, as he led the boys to a window overlooking the street.

A young fellow named Ben was working at a large table. All the pieces of a coat lay on the table. Ben took one of the pieces and laid it out smoothly on a large sheet of very stiff paper. Then he cut the paper exactly like the piece of cloth. When he had cut a piece of paper like every piece of cloth in the ripped-up coat, he had made a coat pattern.

"That's the way they do it," said Mr. Goldman. "Ben makes patterns for all the suits. Your mother uses a paper pattern. But we do not have much use for the paper pattern. We would soon wear it out. We take the paper pattern and lay it on a kind of hard, tough board called fiber board. When we cut a pattern out of that you can't tear it. It will last a long time."

The next man they saw was spreading long pieces of cloth on a table that was longer than most people's houses. He piled layers of cloth one on top of the other, until they were two inches thick. They looked almost like a mattress.

Then the marker came along. He took the fiber-board patterns and laid them out close together on the piece of cloth. That man was proud that he could make more suits from a piece of cloth than any other man in the factory. It takes a very careful man to cut cloth so that there will be the least possible waste.

The marker laid down all of the pieces needed to make a coat, trousers, and vest. With a piece of chalk he marked around each piece of the pattern.

There were as many as thirty layers of cloth under the piece that the man was marking. Some of the cloth was black, some blue, some dark gray, some light gray. The boys saw that the marker was really marking out thirty suits at one time, and the cutter was cutting out thirty suits at a time.

The cutter had the most wonderful little electric cutting machine. He slid the machine around over the top of the cloth in the same way that Joe's mother pushed the iron over the clothes when she was ironing. This little electric cutter had a blade as sharp as a razor. It ran up and down so fast that you could not see it move. You could see only the shiny metal jiggling like the surface of water in the sunshine. The machine cut the thirty layers of cloth as easily as a pair of scissors cuts one layer of cloth.

The cutter was very, very careful to make the sharp blade follow the chalk line that the marker had made on the top layer of cloth. If he should spoil one suit of clothes, he would spoil thirty suits.

It was hard to keep the pieces of cloth for thirty suits from getting mixed. This was a job for the tie-up girl. She followed the cutter. When he had cut the pieces for each part of the suit, the tie-up girl tied a string around the bunch of thirty pieces to hold them all together. When she had done this, there were the pieces for thirty suits, all tied in bundles. Thirty fronts of sleeves were in one bunch; thirty backs of sleeves were in another bunch; thirty left sides of vests in another, and so on.

This story shows one of the many ways in which we are making machinery work for us.

Not very long ago the people who made clothes made one suit at a time. As each suit was made for a different man, the tailor had to have a pattern for each man for whom he made clothes. When he cut out a suit, he cut only one layer of cloth at a time.

THINGS TO THINK ABOUT

1. The people in this story were making ready-made clothes. Tell about the work of the cutter.
2. If you have ever seen a machine that is run by electricity, tell about it.
3. Tell some ways in which the clothing factory is like the bakery.
4. Which of the clothing workers in this story has the most important work to do? Give a reason for your answer.

Making clothes in a large clothing factory.

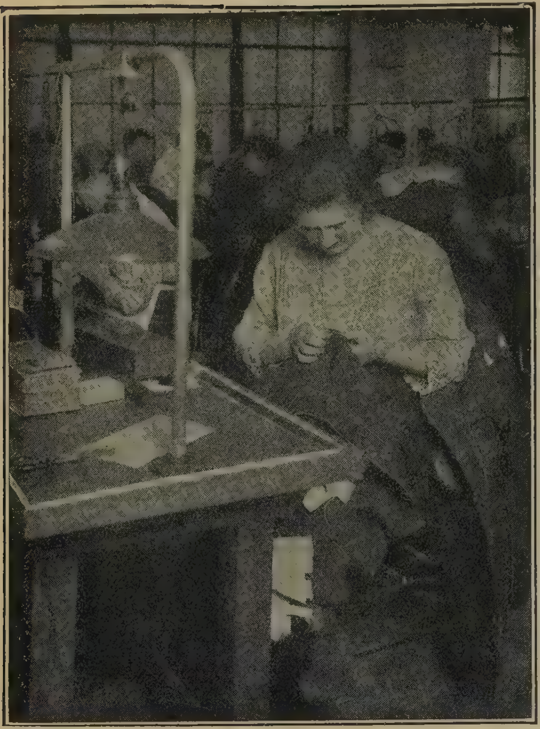
MAKING A SUIT OF CLOTHES

"Now come on," said Mr. Goldman, "we shall go across the street to the coat contractor and see a coat being made. We do not do the sewing ourselves. All we do is to buy the cloth and cut it out. Then we send the pieces to other people. They make the suits. We pay them so much a suit for their work. Some firms do all the work in their own shops, but we like to have it done outside. It is less trouble and we think it is cheaper."

At the contractor's place they took an elevator to the eighth floor. They saw a pile of bundles of pieces of cloth that had just come over from Mr. Goldman's place.

In each bundle there was a black piece on top, then a brown piece, a dark striped one, a light striped one, and so on. The order had not been changed since the pieces of cloth had been laid on the cutting table.

The girl who untied the bundles was very careful to put a number on each piece. She sewed on little tags with a sewing machine. This kept the pieces from getting mixed.



Finishing a man's coat by hand in a clothing factory.

Each tag had a number printed on it. The black suit on top of each bunch was No. 481. The brown one was No. 482. The dark striped one was No. 483. It was that way with every bunch of sleeves, collars, breasts, all the way through. If it had not been for these numbers, someone might have taken a striped black piece and a striped blue piece and sewed them together. This would never do at all. It would spoil two suits.

When the pieces were all numbered, the sewing people took them. These workers sat in rows. In front of each person was an electric sewing machine. Over each machine was an electric light. Not only were there not many windows in this building, but another building stood so close that only a little light came in. The workers could not see to work without electric light.

Some of the workers were men and some were women. Their little sewing machines were so close together that they almost touched. The people were closer to each other than children are in school. The little room was packed full of machines and people.

When the workers talked to each other, the boys could not understand them, for they spoke a foreign language. Many of these people had come from other countries and had not been in this country very long.

Many of them lived over on the East Side of the city, where many, many families live in buildings that are six stories high. They knew very little about our country, but Jack and Joe saw that they certainly knew how to work at making clothes.

Instead of pushing the sewing machines with their feet, as Joe's mother did at home, the sewers touched buttons, which turned on the electric current. Then buzz, buzz, buzz. The machines fairly flew. By the time Joe counted six, a worker had sewed a seam the whole length of a man's sleeve from wrist to shoulder.

When he had sewed the sleeve, he passed it on to someone to do something else to it. This man did not make a whole coat. No one made a whole coat. It took a team of thirty-three people to make one coat. Each one did a little part of the work, and did it very rapidly indeed.

A clothing factory. What are these men doing?

This kind of work is called teamwork. Each one does his small part over and over again, and learns to do it so quickly that he can do more in a day than if each one made a whole garment.

This contractor was only one of many to whom Mr. Goldman had sent cloth. Some made coats, others made trousers or vests, and some made overcoats.

THINGS TO THINK ABOUT

1. Ask someone to tell you how your grandfather got a suit of clothes and a pair of shoes made.
2. Tell about teamwork in making a coat.
3. Why do you think the foreign people came to this country?
4. Why do you suppose the clothing maker had so little room in his factory?
5. How many things can you think of that make up the cost of a suit of clothes?
6. Would you rather work at making clothes in the town near Joe's home or in a large city? Explain.
7. One of the pupils may pretend that he is a suit of clothes and tell his life history.
8. This teamwork that people use in making clothes is used in many ways. Perhaps someone can tell about teamwork in baseball or some other game. Almost all our work has now become teamwork. It would be easy for the children in almost any school in this country to show how the people near the school work at teamwork. There was teamwork on the Brown farm. Sam milked the cows. Joe and Jack hauled the milk to the station. The train carried the milk to the city. Tell who the other members of the milk team were that finally got the bottle of milk to the house door?

The building of an automobile is one of the most wonderful examples of teamwork in all the world. Perhaps someone will tell about it.

Suits of men's clothing hanging on racks in a wholesale clothing store.

A WHOLESALE CLOTHING STORE

Every large city has many kinds of wholesale stores. After you have read the story, you may wish to play a game of store. Pretend that one pupil is Mr. Goldman; that another is Mr. Ford.

"Now let us see the wholesale store," said Joe. "We want to see the place where the clothing-store man at home buys his things."

Mr. Goldman led them back across the street. This time he took them to the second-story front room. This room had windows on the street. It was well lighted. This was the wholesale store. What a surprise it was to the boys! They had thought it would be a big place. They had expected to see wagon loads of clothes piled up almost like hay in the haymow at home. What they saw was a room smaller than the little clothing store in the country. Forty or fifty suits of clothes and overcoats hung around on racks and in showcases. That was all the boys saw.

"Is this all you have to sell, Mr. Goldman?" Mr. Goldman laughed aloud.

"Why, these are only samples. For every suit that is here we have a hundred or more like it made up and all ready to sell. The man who wants to buy many suits needs to see only one. Most of my goods are sold by traveling salesmen. A salesman takes two trunks full of samples. He goes on a long trip. He is gone three weeks or longer. He sees the men who run retail clothing stores. Perhaps he sells a thousand suits and a lot of overcoats while he is gone. We have fifteen salesmen going around the country. We have only three here."

Two or three men were looking at the suits. Who should one of them be but the man from home, the man who had sold Jack the suit and had given him the letter to Mr. Goldman! This man was in New York to get another supply of clothing to sell to Joe's neighbors. Mr. Ford and the boys were glad to see one another.

"Where are all the clothes that you have made up ready to sell, Mr. Goldman?" asked Jack.

"Come on, I will show you," and Mr. Goldman opened a door. There was a large room as big as a barn and as dark as a haymow at night. Mr. Goldman touched a button. Electric light flooded the room. The boys then saw that the great room was full of clothes. There were rows and rows of coats and rows and rows of overcoats, each on a clothes hanger hung across a pipe. About ten feet higher up was still another row, and higher up was yet another.

There were little stepladders to reach the suits. The clothing store man from Joe's town ordered fifty suits. The shipping clerks climbed up on the ladders, took down the suits, packed them into boxes, and sent them to the shipping room on the first floor. That very afternoon the suits started by express to Joe's home town.

Before the boys left, Mr. Goldman showed them the offices where the girls worked who kept the books and ran the typewriters. These offices had no outside windows. Room is so scarce in New York that these people were like the coat makers; they worked by electric light. Even the general manager of the company, who had a very large salary, had no outside window to his office. It was as dark as a pocket except for electric light. Joe was sure by this time that while New York has a great many wonderful things, its buildings do not have much sunshine.

These buildings had little light because the buildings themselves covered almost all of the piece of ground on which they stood. It was the same way on the next lot. One building kept the sun from shining into the next.

THINGS TO THINK ABOUT

1. If you know a traveling salesman ask him to tell you about his work. Then repeat his story to the class.
2. Where do the merchants in your neighborhood buy the goods which they sell?
3. Name some other kinds of things which you think must be sold in wholesale stores in all large cities.
4. What things from your neighborhood go to wholesale markets to be sold?
5. Name some things which people in cities have to do because there is less room than at the Brown farm.

Scene in a radio broadcasting studio. This man's voice may be heard all over the country.

A RADIO BROADCASTING STATION

This story tells about something that nearly all of you have heard or have heard about.

Joe was interested in radio. He was planning to build a stronger receiving set than the one he had at home.

He talked to Mr. Reed about it. One evening Mr. Reed offered to take the family down to a big store to see a broadcasting station.

"Great sport!" cried Joe. "I've always wanted to see the place from which the speeches and music come."

They went into a room where thick, heavy curtains hung on all the walls. On the floor was thick carpet. No sound of footfalls or chance noises from outside must be allowed to get into the radio room. That would spoil the broadcasting.

In this curtained room was an orchestra of ten musicians. No one was there to hear the excellent program. But a little instrument was there—a little instrument that was something like a telephone. It is called a microphone.

A wire from the microphone passed up to the top of the building. The wire was connected to a radio sending set. This sending set sent the radio message out into the air from wires hung between two high towers on the roof. The radio messages went in all directions, so that anyone who had a receiving set could listen to them.

Listening to a radio program.

Thousands of people were listening in their own homes. Some of them were hundreds of miles away. They could hear the music as clearly as though they were in the radio-broadcasting station.

Mr. Reed and his party stood quietly listening to the orchestra playing in front of the microphone. When the music stopped, two men came into the room and went up to the microphone. One of them talked into it as you would talk into a telephone. He said, "This is Station WXYZ. The selection to which you have just listened is 'Old Black Joe,' played by the Dreamland Orchestra. In twenty minutes the orchestra will play again. We shall now have one of our series of information talks. Professor Jenkins will talk to you about oil."

Professor Jenkins stepped in front of the microphone. This is what he said. (See next chapter.)

THINGS TO THINK ABOUT

1. Tell about something that you have heard over the radio.
2. What is the most useful thing that radio does for us?
3. Sometimes Mr. Brown and his family are lonely on their farm. In what way does the radio set that Joe built make their life more interesting? Tell how the radio set is of use to Farmer Brown in his business.
4. Pretend that the microphone in the radio-broadcasting station can speak. Write the story that it might tell you of its work.
5. Pretend you are talking before a microphone. Tell about one of the stories in this book.

Here is a valley with orchards in it. There are mountains on both sides of the

THE STORY OF OIL

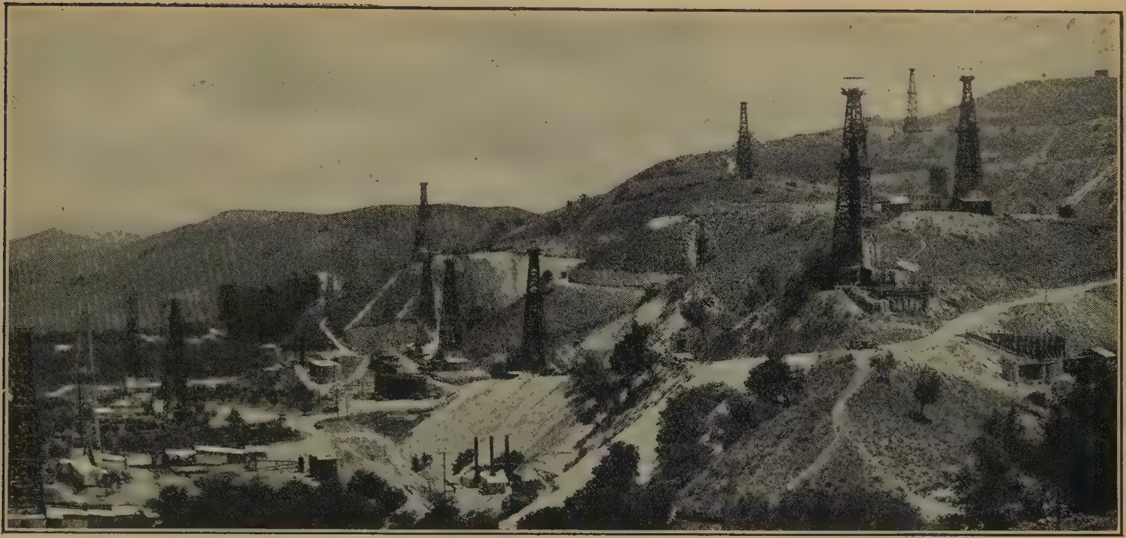
"Do you think you could make a dead fish run an automobile? Well, that is what people do who run automobiles. This is how it happens. They run the automobile with gasoline. The gasoline is made from a thick, dark-colored oil called petroleum. The petroleum we are now using was probably made from the bodies of dead fish and other animals and also from dead plants. Most of them were very small plants and animals.

"Men do not make petroleum. Nature makes it, just as nature makes sand or iron ore. All that men can do is to take the petroleum that nature made and work with it.

"The plants and the animals that made the petroleum we are now using lived a long, long time ago. Their dead bodies were covered up in the sand and mud on the bottoms of large bodies of water. Then the sand and the mud where the animals and plants were buried became covered ever so deep with more sand and more mud. Slowly, very slowly, the plants and the animals turned into petroleum. This took a very, very long time.

"In some places the rocks that have petroleum in them bend up in a certain way so that the petroleum all runs up to the top of the layer of rock. Where this happens, men drill a hole down through the rocks to reach the oil. The oil will then run out or it can be pumped out.

"Sometimes these oil wells are half a mile deep. When the drill reaches the place where oil is, the oil may shoot out as soda water does from a bottle or as water does from a fountain. It may even spurt up as high as the top of a tall tree. The well from which the oil spurts is called a *gusher*. When a gusher first begins to gush, the oil falls down on the ground like rain and runs away. The men get shovels and plows and



valley. Point to the oil tanks. The tall towers in the picture are oil derricks.

work very hard making dams to catch the oil and keep it from running away. This is very dangerous work. One match would start a terrible fire. Once someone was careless with a match and a fire broke out as quick as lightning and burned fourteen men to death.

"It is often a very hard job to get a pipe on the gusher so that the oil will not run away.

"As soon as someone bores a well and strikes oil, all his neighbors begin to bore wells on their land as quickly as they possibly can. They want to get some of the oil before it all runs out of the first well. Sometimes there are so many derricks that they look almost like a forest. It is very wasteful to dig so many wells, because a few wells will get all the petroleum.

"A place where oil is found is called an oil field. Oil is carried from the oil fields in tank cars on the railroads.

"If the oil field has a great quantity of oil, men lay pipe lines for the oil to run through. Then oil can be taken from the oil fields to the place where the oil is wanted. This is something like carrying water through city water mains, isn't it?

"Some of the pipe lines for oil are more than a thousand miles long. It would take you more than a day and a night to travel that distance in a fast express train.

"In some places the end of the pipe line is a rubber hose six inches in diameter. The hose is taken over the side of a ship and the oil runs into tanks on the ship. Ships made to carry oil are called *tankers*. There are hundreds of such ships. A great quantity of oil is needed to run all the automobiles and trucks and airplanes and gasoline engines that men have built.

"You know that gasoline is made from petroleum. This is done at an oil refinery. The oil refinery also makes kerosene, paraffin, machine oil, vaseline, and many other things from crude petroleum. Even the candles for our Christmas trees and birthday cakes are made from petroleum.

"Petroleum does not smell good, but it is very useful to us.

"In our country we need to take better care of our oil, and gas, and our other natural resources. It takes only a few years to take all of the oil out of an oil field. Many oil fields have already been used up or wasted. The digging of many wells is wasteful. Letting oil run out into pools is wasteful. Letting natural gas escape is wasteful. These things do not grow as crops and trees grow. Man cannot put back into the ground a pound of coal or a drop of oil or enough iron to make a nail. When they are gone, they are gone, and we have less to use. Think about this and then perhaps you can help to save (*conserve*) our natural resources."

THINGS TO THINK ABOUT

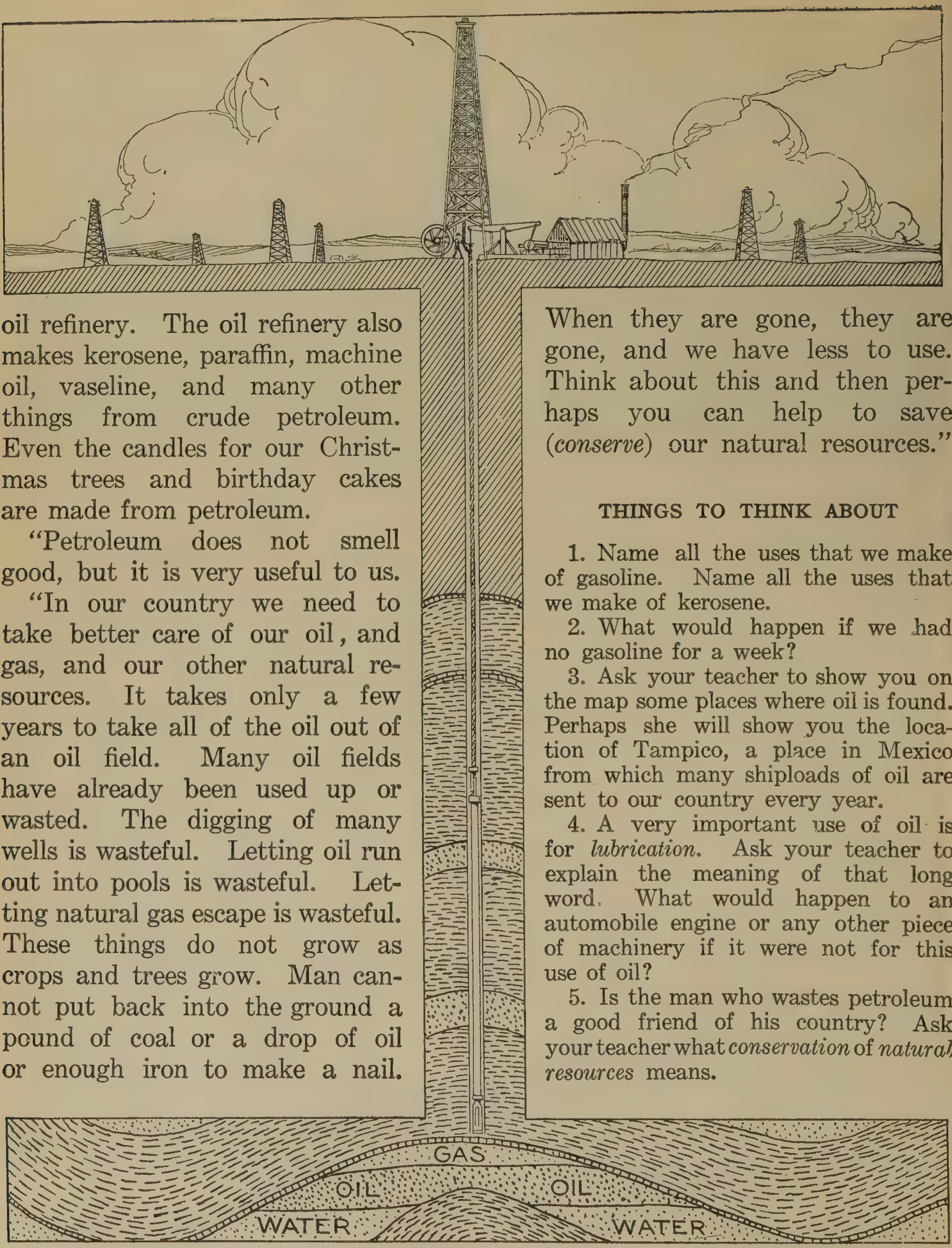
1. Name all the uses that we make of gasoline. Name all the uses that we make of kerosene.

2. What would happen if we had no gasoline for a week?

3. Ask your teacher to show you on the map some places where oil is found. Perhaps she will show you the location of Tampico, a place in Mexico from which many shiploads of oil are sent to our country every year.

4. A very important use of oil is for *lubrication*. Ask your teacher to explain the meaning of that long word. What would happen to an automobile engine or any other piece of machinery if it were not for this use of oil?

5. Is the man who wastes petroleum a good friend of his country? Ask your teacher what *conservation* of *natural resources* means.



An oil well, a derrick, and the drill that digs the deep well. Tell how the engine makes the drill go up and down. What will happen when the drill reaches the oil?

A bunch of bananas ready to be cut from a banana tree.

The donkey carries four bunches of bananas.

A BANANA SHIP UNLOADS

As you read this story, you can be getting ready to answer this question—Is teamwork needed to get a banana?

Jack got out the New York telephone book. It was three times as thick as the largest geography in Joe's school. A large book is needed to contain the names of all the people in New York who have telephones.

"Manhattan 1700, please," said Jack.

. . . .

"Is this the Union Fruit Company?"

. . . .

"Well, three of us would like to see a banana ship unload."

"Wait a minute," said a girl's voice in the phone, "I will give you the right party."

Then a man's voice said, "This is Mr. Inman."

"Mr. Inman," said Jack, "three students want to see a banana ship unload. Will you let us see it if we come down?"

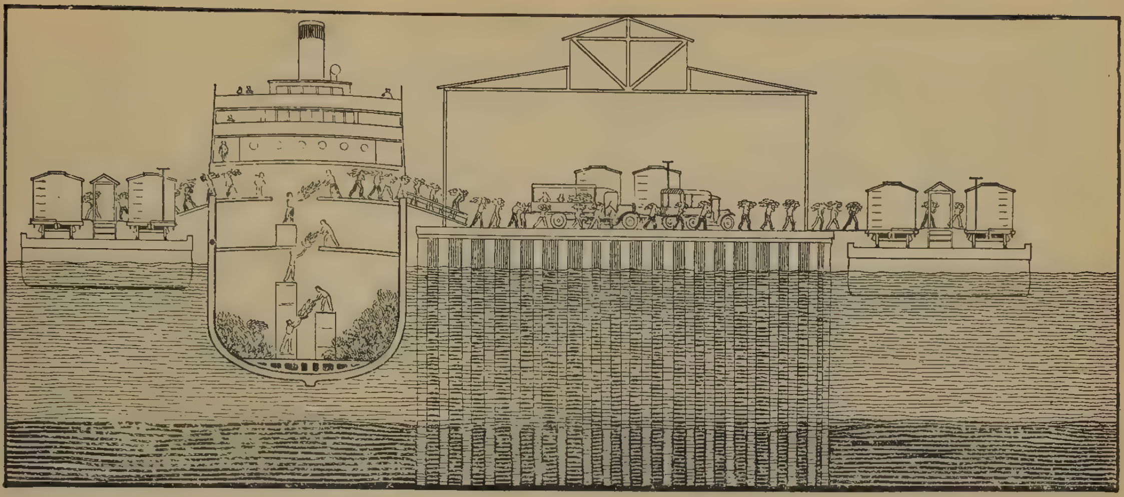
"Come along," said Mr. Inman. "Come to Pier 15 East River and ask for me. A boat came in last night. She is just getting into the dock now. Come down about ten o'clock."

You may be sure that the three were not late in arriving at Pier 15 East River. What a busy place it was!

Many trucks and wagons stood waiting in the wide street in front of the pier shed. They had come to get loads of bunches of bananas. The shed had two wide doors, one for

Sometimes small railroad tracks are laid to the banana plantations. This little car, loaded with bananas, is drawn by an ox over the rails to the nearest railroad.

See the tiny engine and its little cars loaded with bananas standing beside the large cars. This little plantation train uses a special track and carries bananas from the field to the railroad.



This kind of picture is called a cross section. It shows the cross section of a banana ship, and a wharf or pier with a freight shed on it. See the long poles or piles which stick down into the mud and support the pier. Tell what the men are doing.

trucks to enter and one for trucks to go out. Between the doors was a little office and a stairway.

"Will you please tell me where I can find Mr. Inman?" Jack asked a man who watched the trucks as they passed through the doors.

"Go up the stairs," said the man.

Mr. Inman was the dock superintendent. He was boss of all that happened on that dock. He was too busy to pay much attention to visitors, but he called his son.

"George, show this party over the pier and the ship," said he. "Let them see whatever they wish to see."

Down the back stairs they went to the freight shed.

"Follow me," said young Mr. Inman. They walked quickly across the shed to a place where a group of workmen stood. There in the side of the building was a large, open doorway.

"What do you see through that doorway?" asked Mr. Inman.

"A board fence painted white," said Joe.

Mr. Inman laughed. "Come closer. Now look."

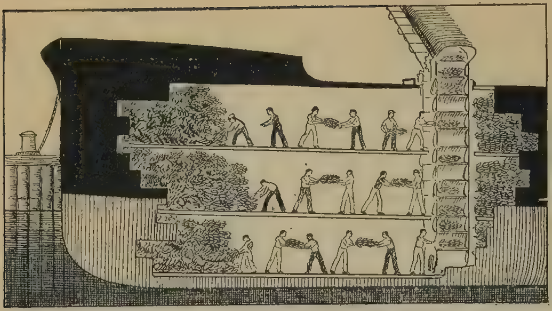
"Why," said Joe, "it's the side of a ship!"

"Watch it a minute," said Mr. Inman.

Suddenly a door in the side of the ship was opened from the inside. Two men stood in the doorway in the side of the ship, each holding one end of a bunch of green bananas.

"Step aside," said Mr. Inman. "They are starting to unload."

The workmen who were waiting stepped up to the door in the side of the ship. As each man came in front of the door, he received a bunch of bananas. The men in the doorway of the ship kept on passing out bunches of bananas, and passing out bunches



Looking into the side of a banana ship. Find the belt conveyor.

of bananas, and passing out bunches of bananas, to the endless line of carriers. Each one stopped just long enough to receive a bunch and then he walked away across the shed.

The bananas were as green as grass. Bananas are picked green. They are hard then and can be handled without making bruises on them. Ripe bananas are too soft to be carried far.

"Do you want to go into the ship?" said young Mr. Inman.

"Yes! Please!" came the three voices all at once.

They all squeezed through the doorway behind the banana passers.

Inside, the ship seemed to be full of men. There was much clatter of talk. Some of the talk was in a strange language. Here was another line of men carrying bunches of bananas to the door in the side of the ship.

"Look," said Mary. "Did you ever see anything so funny?"

"What?" asked Joe.

Mary pointed to a place in the middle of the ship, and Joe was amazed to see a bunch of bananas come up through the deck of the ship. The deck is the floor on which they stood. A long line of men passed near. As they passed, each man took a bunch of bananas as it came up through a hole in the deck. Then the man behind him got a bunch, and the next man got a bunch, and so on and on.

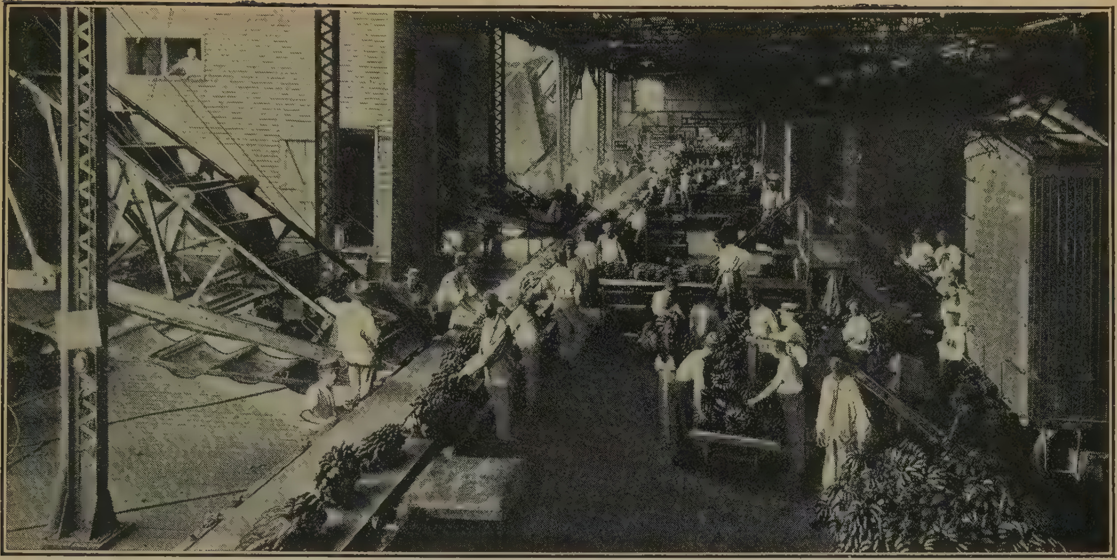
"My word!" said Joe, "that looks spooky!"

The three crept close and peered down the hole. It seemed as if they were looking into a great, dark cave full of the sound of many voices. One does not need much light to find a bunch of bananas. In this huge dark place they could see dimly many men walking to and fro, carrying bunches of bananas and passing them up, up, up from the bottom of the ship.

"Come on over to the other hatchway and see the hoisting machine which lifts the bananas." *Hatchway* is the name for the opening that goes down through a deck into the body of the ship. This lower part of the ship, where some of the freight goes, is called the *hold*.

They followed Mr. Inman to the front of the ship. Here he showed them the hoisting machine. It was a wide, canvas belt with pockets in it. In the pockets were bunches of bananas that were being carried up from the depths of the ship. Electricity was doing this work. This hoisting belt was doing more work than a dozen men were doing at the other hatch.

A man came up out of the hold.



At the left are two belt conveyors carrying bananas from the ship which we cannot see. In the center is a long, moving belt carrying bananas past the men who load them into the freight cars. How many freight cars can you see?

He climbed up a little iron ladder that was fast to a post.

"May we climb down that ladder?" asked Joe.

"Yes," said Mr. Inman, "but be careful that you do not fall. You never climbed a ladder as straight up and down as that one."

On each of the three floors or decks bunches of bananas lay on top of one another. They reached as high as Joe's head. On each floor men were carrying them and putting them on the canvas belt or carrier. Up, up, up they went; up without ceasing. Round and round walked the workmen carrying bananas from the piles and putting them into the pockets of the conveyor.

The boys were surprised to see how cool it was in the hold of the ship. It had been made cool by machinery in the same way that cold-storage houses are made cool. If the hold of the ship had not been cooled, the bananas would have ripened before they reached the people who wanted them.

While the boys climbed down the ladder, Mary stayed with Mr. Inman. One bunch had some yellow bananas on it. Mr. Inman pulled one off and gave it to Mary. She ate it. It was very good.

"Reject, Bill," said a man who stood by the conveyor. This man was the inspector. Ripe bananas cannot be shipped long distances by train. When the inspector said, "Reject" it meant that the bunch with the yellow bananas had to stay in New York. So Bill, the banana passer, carried it off in another direction and handed it to a man who put it into a truck. This went to a near-by fruit store.

Most of the bananas on this ship were loaded into cars to go to many other cities far away from the sea. They were sent in full car loads to many cities in the interior of our country. There they would be shipped in baskets or crates, a few bunches at a time, to the towns and villages.

The cars were on floats. There were four car floats beside the ship and there were four more on the other side of the pier. The cars on the floats across the pier were being loaded by the long string of men that Joe and Mary and Jack saw when they first came on the pier. At the door of the freight car stood another inspector. He looked at every bunch. If he saw any yellow bananas on a bunch he sent that bunch away to the trucks.

There were enough bananas in this one ship to load eighty freight cars. Five hundred men worked all day long to unload the ship. They finished the work in one day. People who deal in bananas have to hurry with them before they spoil.

As the party went out through the freight shed, Jack and Joe went over and felt some sacks that were stacked up in a great pile. The sacks had large, round things in them.

"Coconuts," said Jack.

"Coffee," said Mary, as she felt a sack in the next pile.

"Both right," said Mr. Inman. The banana boats often bring a thousand sacks of coconuts or a thousand sacks of coffee. Both these things grow in Banana Land, which is a name that we can give to Central America and the West Indian Islands.

Mr. Inman also said that in the winter the boats often have one deck full of boxes of grapefruit, squashes, tomatoes, and other vegetables. The weather is always warm in Banana Land, even when we have snow and ice here.

"What does this ship take back to Banana Land, Mr. Inman?" said Joe.

"That is quite another matter, my boy. It is too long a story to tell in a minute. Come to the next pier and see. The sister ship to this one is there. She finished unloading bananas three days ago. She is now almost loaded again. She will sail away to Banana Land tomorrow morning."

THINGS TO THINK ABOUT

1. Imagine that you are a bunch of bananas. Tell the story of your trip from Banana Land to the place where you are sold by the dozen.
2. Find out the name of the city to which the banana ship brings the bananas that are sold near your school.
3. Make a list of some things that you think people in Banana Land do not have.
4. Perhaps you can find some pictures that show bananas, coconuts, and coffee growing.
5. A hundred years ago there were no steamships from our country to Banana Land. Do you think people in the United States had bananas then? Explain.
6. What things have made it possible for us to bring bananas from Banana Land to the United States?
7. Name some things that you use that came from other countries.

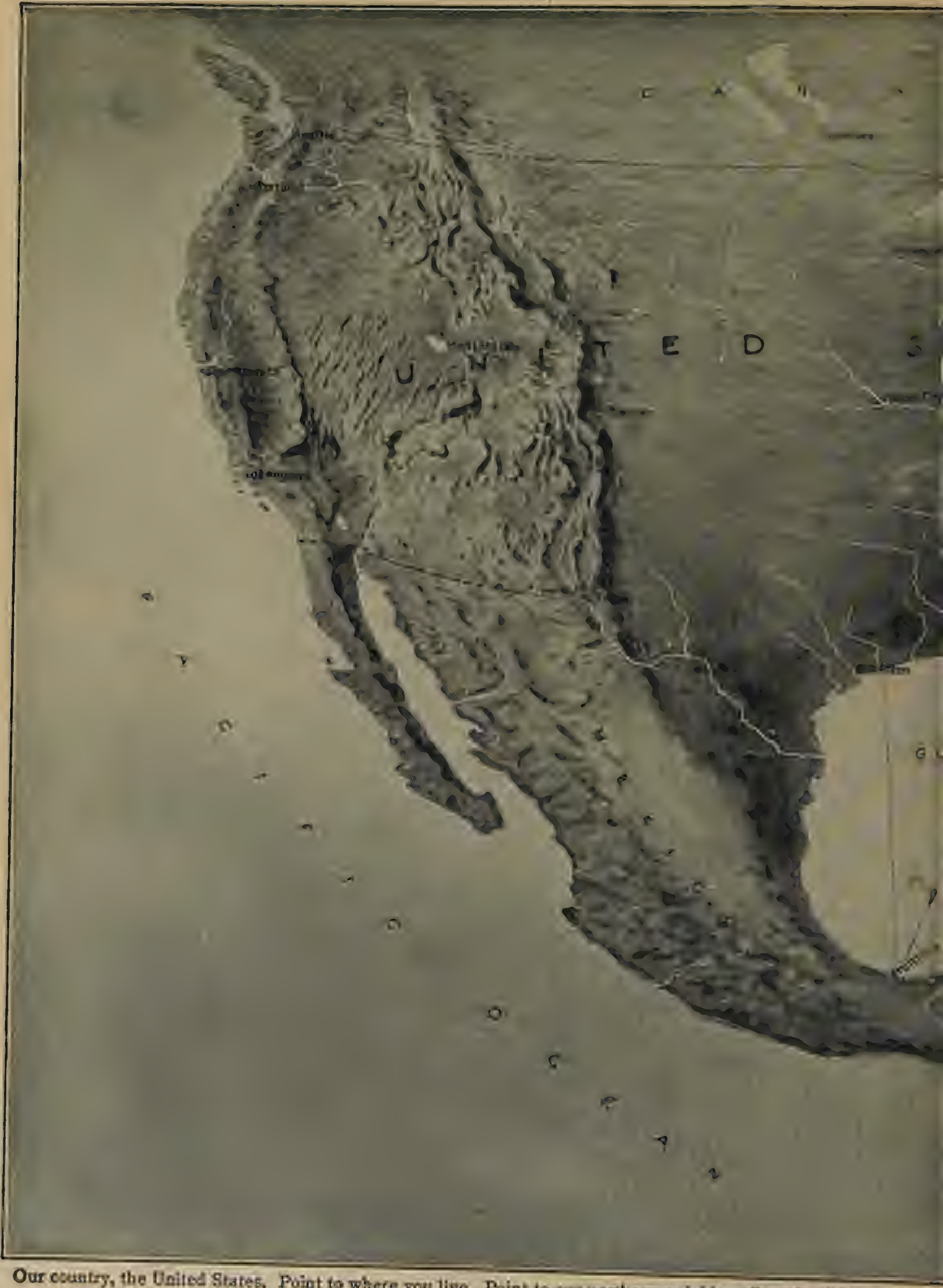
The big freight shed with its piles of freight.

A BANANA SHIP SAILS BACK WITH FREIGHT

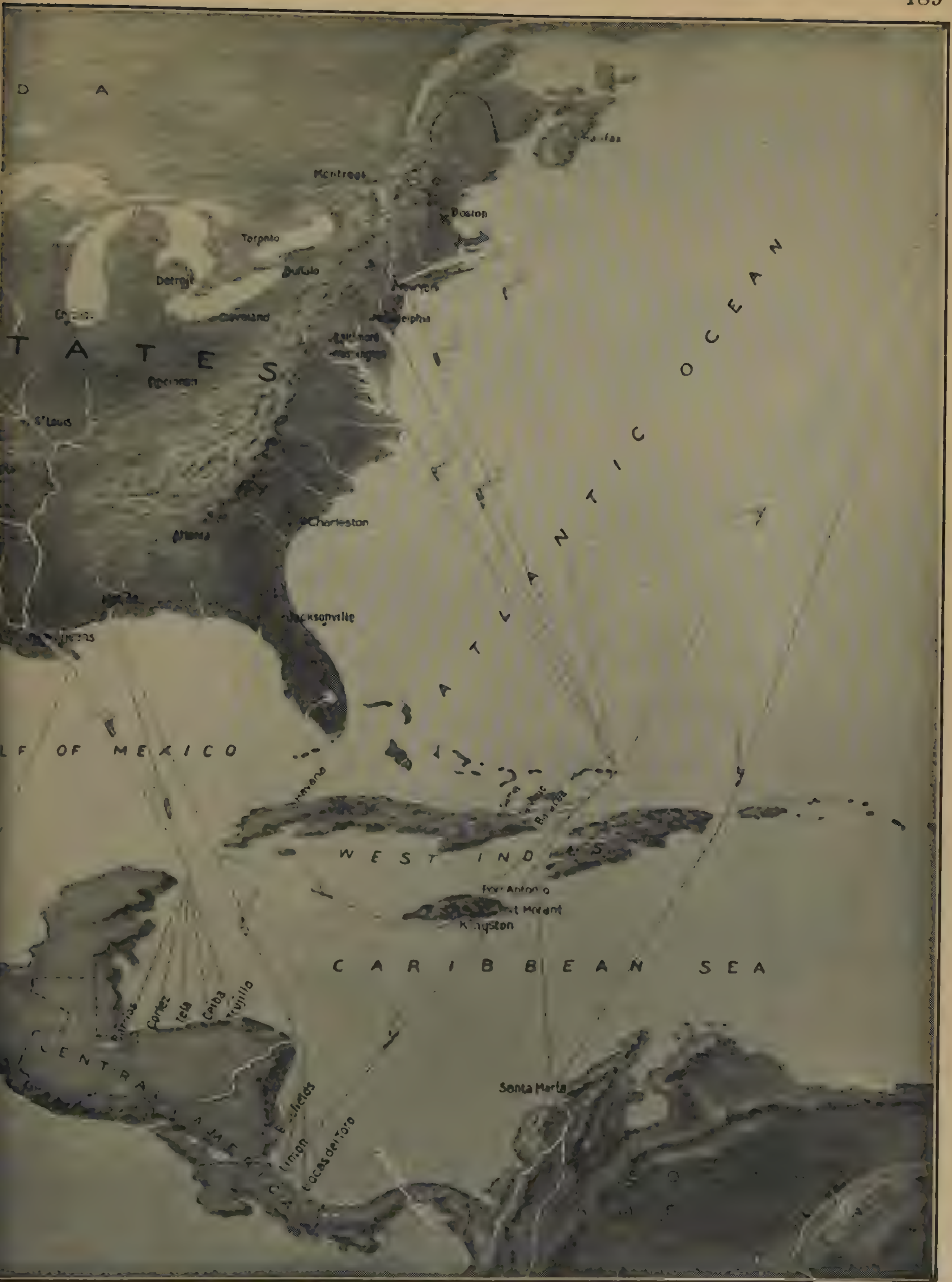
When you buy bananas from the store, you pay the banana man for them by giving him something. When our country buys bananas from another country, our country has to pay for them by sending something in return. This story tells how our country pays for bananas.

As they walked into the freight shed on the next pier, Joe said to himself, "This building is as long as a city block." Along each side of it there were piles of freight ready to be loaded into the steamers that would take it across the sea to Central America. There were little boxes and large boxes, flat boxes and square boxes. Some of these were of thin wood. Joe thought that these must have light stuff in them. Other boxes were of thick boards, put together with many nails, and had iron bands around them. There were kegs, or small barrels, medium-sized barrels, and large barrels called *hogsheads*. Joe wondered what could be in all these packages.

Fifteen or twenty trucks were inside the building. The middle of the great shed was left open to serve as a roadway where trucks could come and go. Some of the trucks were unloading freight. Some stood idle while their drivers hunted up someone to sign a paper called a *receipt*. The truck driver has to be careful about getting a receipt. If he goes down to the freight warehouse with forty-eight boxes of soap, he must take back to his employer a



Our country, the United States. Point to where you live. Point to our northern neighbor, Canada. Point to our
New Orleans to


D A
Montreal
Boston
Toronto
Buffalo
Detroit
Cleveland
New York
Philadelphia
Baltimore
Washington
T A T E S
St Louis
Charleston
Atlanta
Mobile
Jacksonville
ATLANTIC OCEAN
LF OF MEXICO
Havana
WEST INDIES
Port Antonio
Port Morant
Kingston
CARIBBEAN SEA
Barrios
Cortez
Tela
Ceiba
Trujillo
CENTRAL AMERICA
Bluefields
Limon
Bocas del Toro
Santa Marta

southern neighbor, Mexico. Trace a steamship line from New York to Central America (Banana Land); from Banana Land.

piece of paper that reads something like this:

Received from Andrew Wilson, 48 boxes of soap.

(Signed) Union Fruit Company,
per Thompson.
Pier 15 East River.

Mr. Thompson was the man in charge of the warehouse.

Then the warehouseman has to hand to his employer a piece of paper that reads something like this:

Received from Thompson, 48 boxes of soap.

(Signed) K. Jenks.

Mr. Jenks was the man who had charge of the ship's cargo.

"Oh, look, did you ever see such a huge box?" said Mary. "Why, it is almost as big as a freight car!"

"I wonder what it can be?" said Joe.

Then Jack looked on the other side of the box and read: "Automobile. Keep this side up. J. B.—Kingston."

"Kingston is in Jamaica," said Mary. "See how well I remember my geography lesson."

"Rumble, rumble, rumble!" went a little two-wheeled truck. A stevedore was pushing it across the freight shed. A stevedore is a man who loads or unloads things that boats carry. The stevedore's truck had three brown sacks on it. Another stevedore followed with another truck with three more sacks. Then another and another—a whole string of stevedores, wheeling trucks, each loaded with three sacks.

The stevedores tipped up their trucks and dumped the sacks out on the end of a board. The sacks slid down the board into the ship through a small door that had been opened in the ship's side.

Joe and Jack and Mary and Mr. Inman went down the board to see where these sacks went. They had to walk carefully to keep from slipping.

When they first got into the ship, they could not see well, for it was not very light. In a moment they could see better. The place was only high enough for a man to stand up. It was just like the place on the sister ship where the boys had seen the bananas.

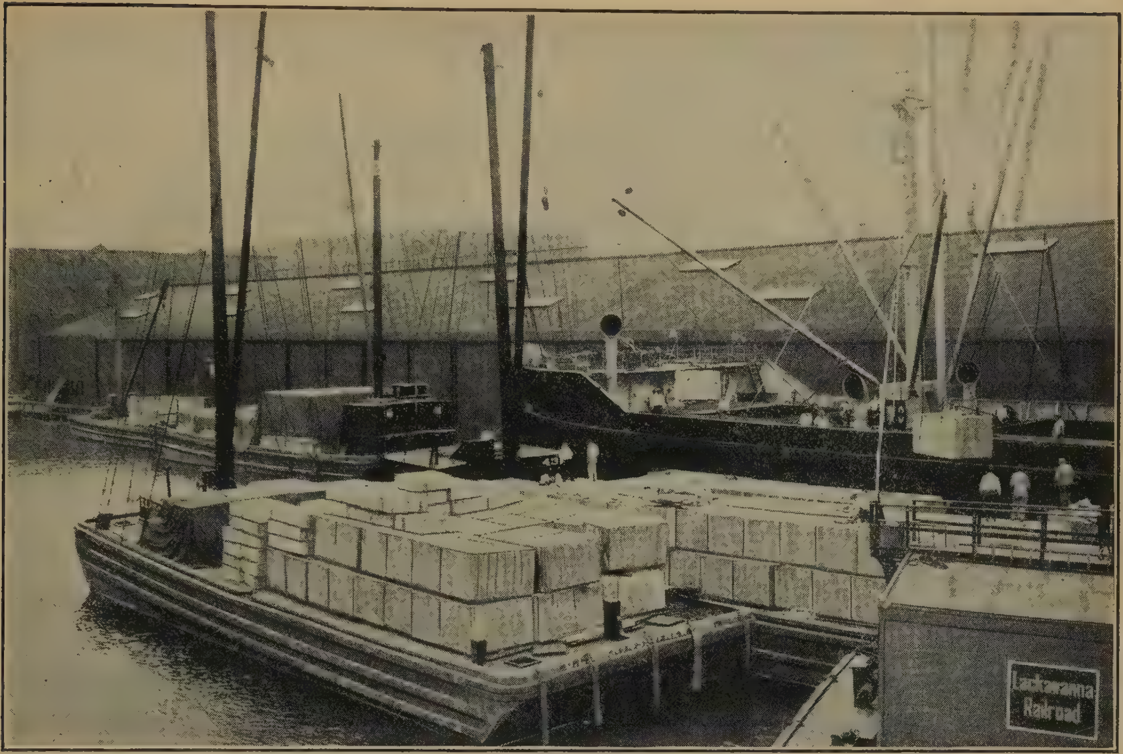
A string of men walked past, each picking up a sack of rice as he went. They carried the sacks back toward the middle of the ship and piled them up in neat, straight piles like bricks in a wall.

Such a lot of stuff as there was in that ship! It was packed full of things from bottom to top.

"Ginger ale," said Jack, as he read the printing on a box.

"Glass lamp shades," said Mary.

Then they began to race, to see who could find the most new things. They called out to each other: "shovels," "Jello," "bed springs," "sweet pickles," "truck tires," "drugs," "automobile oil," "typewriters," "crackers," "safety matches made in Sweden," "water buckets," "automobile tires," "cheeses," cheeses in round, wooden boxes—a whole pile of cheeses that reached from floor to ceiling.



See the big box being lifted by ropes from one of the floats to the ship. In the back of the picture is one of the freight sheds on a pier. What might a tug do here?

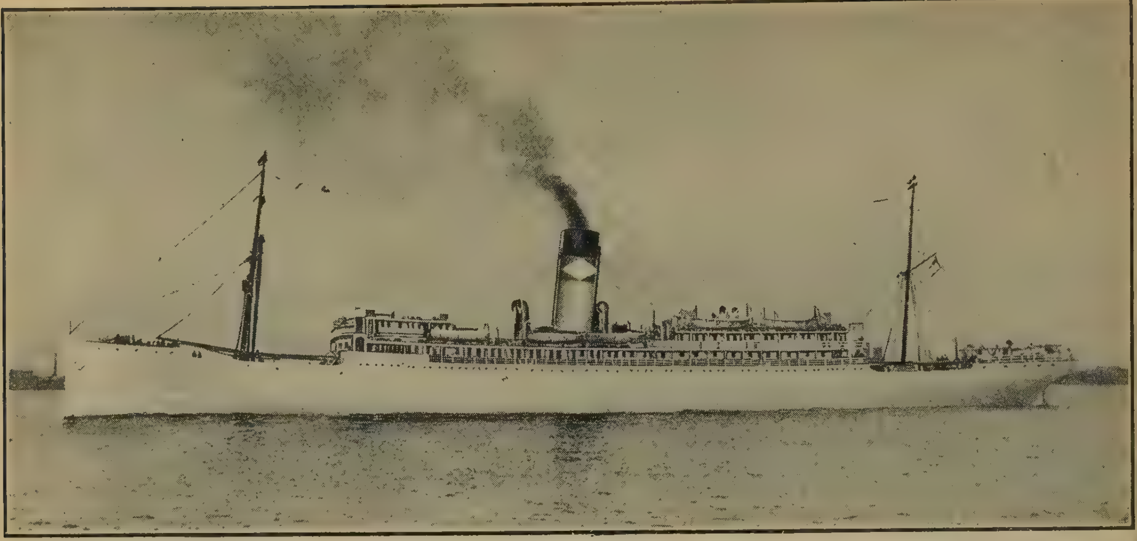
They crawled out again and went up on the ship's deck. As they looked over the ship's side, there came Puffy, the tug.

Puffy is a strong little ship. A tug is a boat that is nearly all engine. It does nothing but pull other ships into docks, or pull them into the river, or up and down the river or bay. Find Puffy on page 194.

Puffy was pulling a barge much bigger than herself. She pulled the barge up close to the ship. The ship's men made the barge fast to the ship with ropes. Then away went Puffy out of the dock and into the river. "Poof! Poof! Poof!" said Puffy, as she blew out a lot of black smoke from her tall, black smokestack. All day long and sometimes at night too, Puffy goes about the harbor and docks, pulling boats or barges that are fastened to her with ropes.

The barge that Puffy was pulling had two large piles of barbed wire on it. As soon as the barge was made fast to the ship, the loading gang climbed down to her. They spread out on the floor of the barge a big net. The net was made of rope that was as thick as Mary's wrist. The loading gang wore thick gloves and carried strong iron hooks. They piled rolls of barbed wire on the net.

"Twenty-seven," said the inspector who watched and kept count in his little book. "Twenty-eight, twenty-



A banana ship sails to Banana Land.

nine; one more, make it thirty." One more roll was put into the net. Each roll weighed a hundred pounds.

The four corners of the net were lifted up and put over a big hook that was on the end of a very thick rope. This rope was fastened to Woodjy, the winch.

The winch is a spool, nearly as large as a barrel. It is made of iron. The winch has a little engine to turn it. When the winch man pulls the handle, the engine runs and turns the winch. The winch winds up the rope that is fastened to it just as we wind thread on a spool by turning the spool.

"All right," called the gang boss. "Let her go."

"Woodjy! Woodjy! Woodjy!" came a sound from the deck of the ship. That was Woodjy, the winch.

When Woodjy started his noise, the net with the thirty rolls of barbed wire went straight up into the air. Then it swung around.

"Look out for your head, boy," a sailor shouted to Joe. Joe dodged the net full of rolls of wire as it swung around over the open hatch of the ship. The loading boss waved his hand. The winch man pulled the handle a little and the net sank slowly down into the hold of the ship.

"A winch is a handy thing," said Mr. Inman. "I don't know what we would do without it."

A dozen men were waiting for the net in the bottom of the ship. They rolled the thirty rolls of wire off into the sides of the ship. They put half of them on one side and half on the other, so that the ship would not tip. That wire was to make a fence around the fields on a cattle ranch in Central America.

As they watched the men rolling the wire away, Jack noticed in the hold many barrels of cement, bundles of iron pipe, and piles of steel plates. These were to be used in making a big oil tank. Some pieces of this tank were forty-eight feet long. They were too large to go down the hatch, so they were left on the deck of the ship.

Banana Land does not have many factories to make the things the people buy in stores, so the banana ship carries back almost everything you can think of.

THINGS TO THINK ABOUT

1. Do you think a tug carries freight? Explain.

2. There are some towns in Central America that sell nothing but bananas. The people there grow nothing but bananas to sell, a few garden vegetables for their own use, and grass for the mules that help on the plantations. These towns have no railroads except the little short ones that go back into the forest to the banana plantations. On page 182 you saw pictures of these little railroads. Make a list of things that you think the Banana Land people must buy from other countries.

3. Why could we not keep on receiving bananas if we did not keep on sending things to Banana Land?

4. The things we send to other countries are called *exports*. Name some *exports* that are sent from your city or nearest town.

5. See if you can load a floating tin can or tin box with sand in such a way that it will float as evenly as it sits on a table. This will show you why men must be careful in loading a ship.

6. What would happen if they put more of the freight on one side of the ship than on the other?

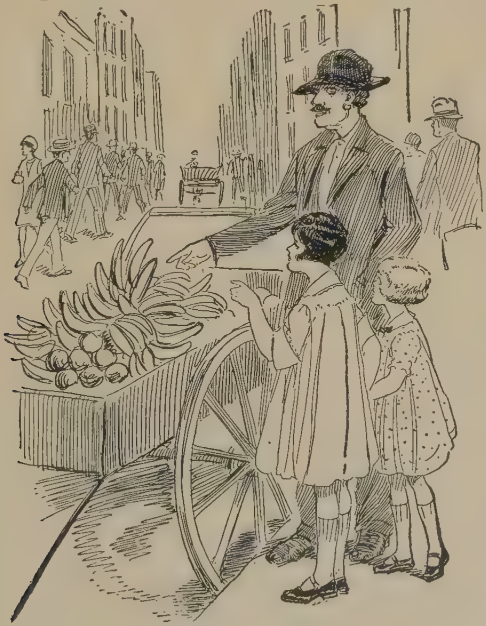
7. See if you can make a winch with a spool and a string. Then make the winch lift lead pencils.

8. Could Banana Land buy our goods if its people could not sell bananas? Explain.

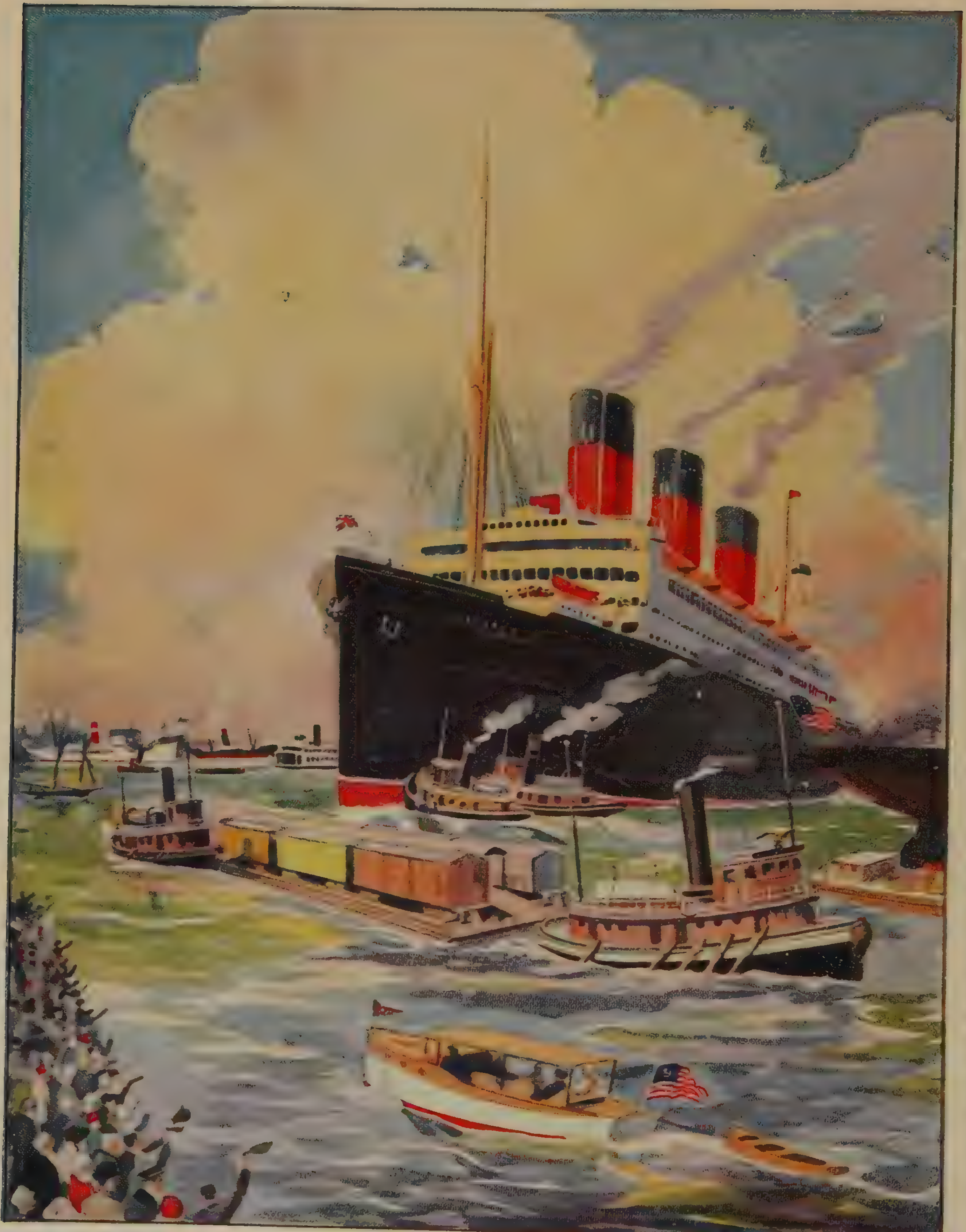
9. Suppose there was war in Banana Land so that the people could not ship bananas. Would that make us richer or poorer in this country? Explain.

10. Why must all workers be careful to get receipts for goods sent?

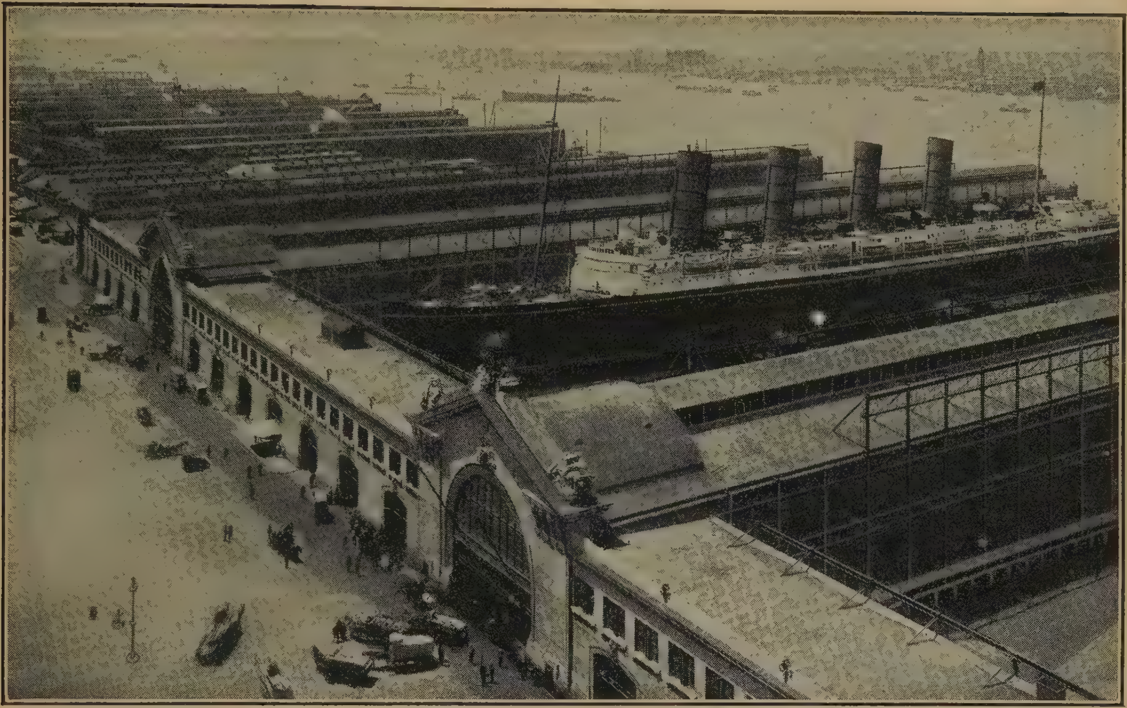
11. In the West Indies it is so warm in winter that there is no frost. Frost kills banana plants and sugar cane. Tell how the winter frosts in some parts of the United States and the warm winter of the West Indies make trade between our country and the West Indies.



What is the girl saying?



The tugs push the great steamer out into the river. See if you can pick out a rowboat, a motor boat, a sailboat, a ferryboat, a car float, a white banana ship, and the people waving good-by. To find the captain look for the black figure against the central smokestack. He is standing on what is called the bridge.



A wide street along the river front and a ship lying in her dock. ©

A PASSENGER STEAMER SAILS

Before you begin this story, ask your teacher to show you on a map where England, Scotland, Ireland, and Wales are located.

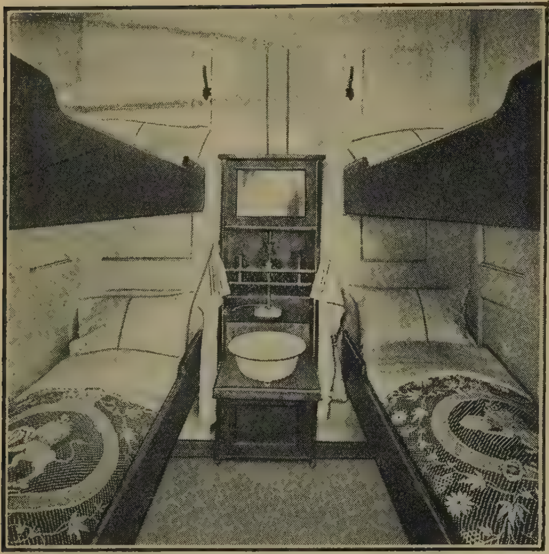
While Joe and Mary were in New York, Jack's Uncle Alfred had to go across the ocean on a business trip. The three children were delighted to go to the dock to say good-by to him. They liked Uncle Alfred. They liked going to see the ship that would take him to Europe.

On the morning of the day that the ship was to sail, the family rode in the subway to Fourteenth Street. There they took a crosstown car to North River. At the end of Fourteenth Street there was a very wide street along the river front. Along the river side of the street was a large, long, stone building. This building stood without a break along the river front for many blocks.

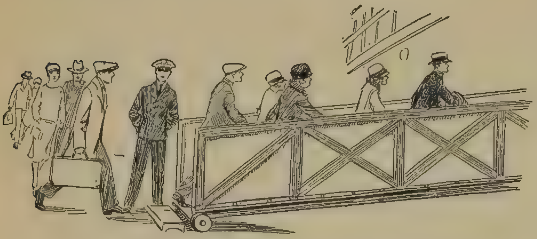
The building had many huge doors opening into it. Over one of these doors was painted Pier 54; over another, Pier 55. Above the numbers Joe saw the name of the steamship line that used the docks along this part of the river shore. Other steamship lines used other parts of the great building.

This one steamship line has so many ships that sometimes as many as six of its ships sail on the same day from New York to cities across the sea.

Uncle Alfred's party reached the pier an hour before sailing time. Already automobiles and taxicabs were arriving in a steady stream.



The stateroom in which Uncle Alfred slept.



Walking up the gangplank to the ship.

They brought hundreds of people who were going to sail on that one boat.

Inside the building everybody was very busy. People were going in every direction, but everyone seemed to know his own business. On a ship everything must be done just so or there might be trouble.

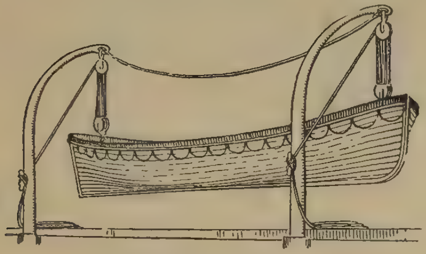
A man, who wore a blue coat and cap, looked at Uncle Alfred's ticket and let him and his friends go through the gate. Another man in blue uniform then took his hand baggage. This man was called a *porter*. They all walked together down the long pier with many other people. The porter carried the baggage to the side of the ship. Then a man on the ship, called a *steward*, took the baggage to Uncle Alfred's stateroom. That is what a bedroom on a boat is called. This room was for four people. It had four narrow beds called berths. Three other men that Uncle Alfred had never seen before would share the little room with Uncle Alfred all the way across the ocean.

"Shall we look over the ship?" asked Uncle Alfred as soon as his baggage was put in a safe place in his stateroom. That of course was what the children had been waiting for. They lost no time in starting down the long hall that had sleeping rooms on both sides. Some of these rooms were very large and fine. In them they saw people with much baggage. These people were chatting with friends who had come to see them sail. Some of the friends had brought bouquets of flowers and baskets of fruit as good-by presents.

At the crossings of the halls or corridors stood men in uniform or women in uniform. These were *stewards* and *stewardesses*. They were there to tell the people where to go and to help them find their rooms.

When Uncle Alfred and his party climbed the stairs to the top deck and looked about, they found it hard to believe that anything so large as that ship could ever move at all. Joe walked across the top deck, counting his steps as he walked. It was forty steps wide. Then he

The dining room on a passenger steamer.



A lifeboat on a steamer.

stepped the length of the deck. It was two hundred steps long.

This top deck was almost covered with small boats. They had canvas covers to keep out the rain. These were lifeboats—boats to save lives if the ship should sink. Then the people would have to get into these small boats. On the side of one of them Joe read "For 72 persons." Joe counted twelve boats in a row on each side of the top deck and enough more at the back end to make sixty altogether.

Joe looked over the side of the ship.

"Why, this ship is higher than our barn," he exclaimed.

"I'll bet it is," said a sailor who was sweeping the deck. "It's eighty-seven feet high. How high is your barn?" Joe thought a minute and said that he didn't think the barn was over forty feet high.

"Why, boy, this ship goes down in the water that far."

Downstairs the dining room of the ship looked like the dining room of a big hotel.

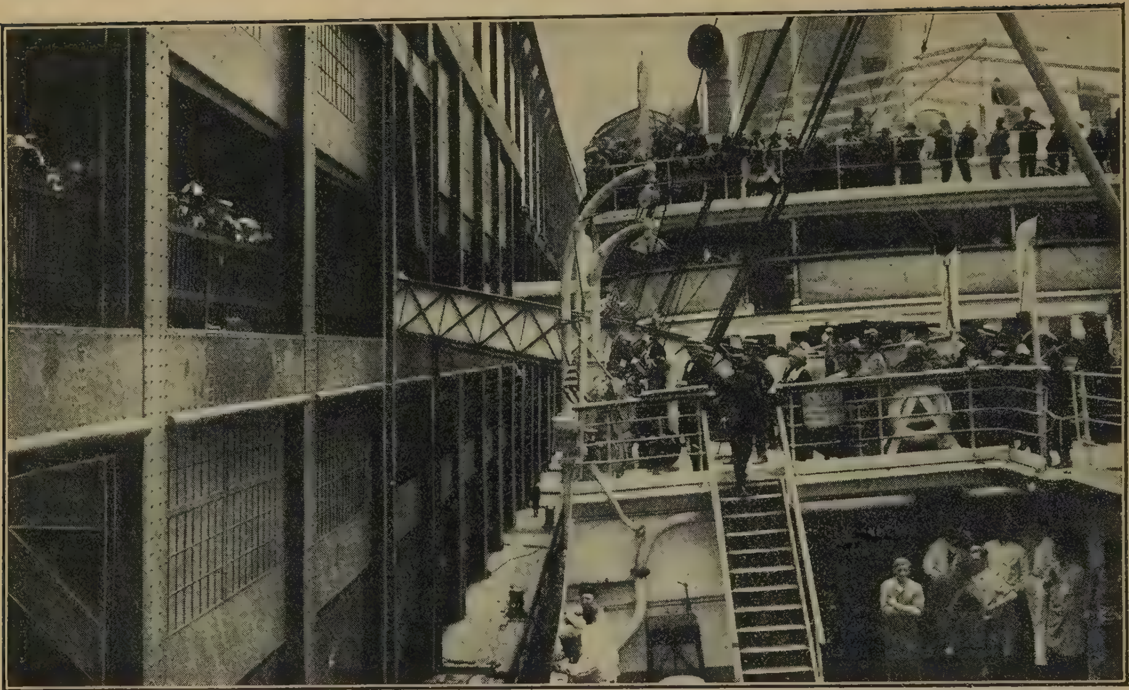
"What a lot of tables," exclaimed Mary. Before they could go any farther there came a great noise.

"Bong-n-n! Bong-n-n! Bong-n-n! Bong-n-n!" It was a sailor beating loudly on a brass gong.

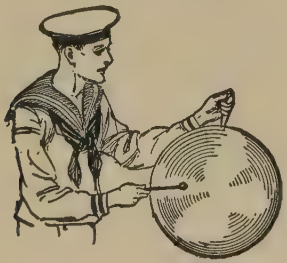
"All visitors ashore, please," he said, as he went beating his gong up and downstairs the whole length of the ship.

"Come on, Jack," said Joe, "we don't want to be left on the ship."

"I do," said Jack, "I want to go to Europe with Uncle Alfred."



View of a ship in a dock. Point to the gangplank by which people go from the dock to the ship. See the visitors on the dock. On how many levels or decks on the ship can you see people standing?



"Time to go ashore."

Uncle Alfred bid the children good-by and they thanked him for having brought them to see him sail.

When they got near to the gangplank, there were hundreds of people waiting to go down.

"I think every passenger must have fifty friends here to see him off," someone said.

They heard some people talking in languages they did not understand. Some were kissing each other good-by.

"Take care!" said the man at the head of the gangplank, as a lady started down with her head turned backward toward her friends on the ship. "Please look where you are going," he said. "We do not want any accidents here."

The last visitor had come down the gangplank. Two men in blue uniforms shook hands with the deck man at the end of the gangplank and went up into the ship. "Boo-oo-oo-oo, Boo-oo-oo-oo!" That was the ship's whistle. It was a queer whistle. The sound was so deep and low that it almost shook you. It almost made you shiver. That is the way the whistles of big ships blow. They do not sound loud, but you can hear them for a great distance.

The men at the top of the gangplank began to untie the ropes that

Some of the passengers on the deck of a big steamer.

held it fast to the ship. The time had come for the ship to sail.

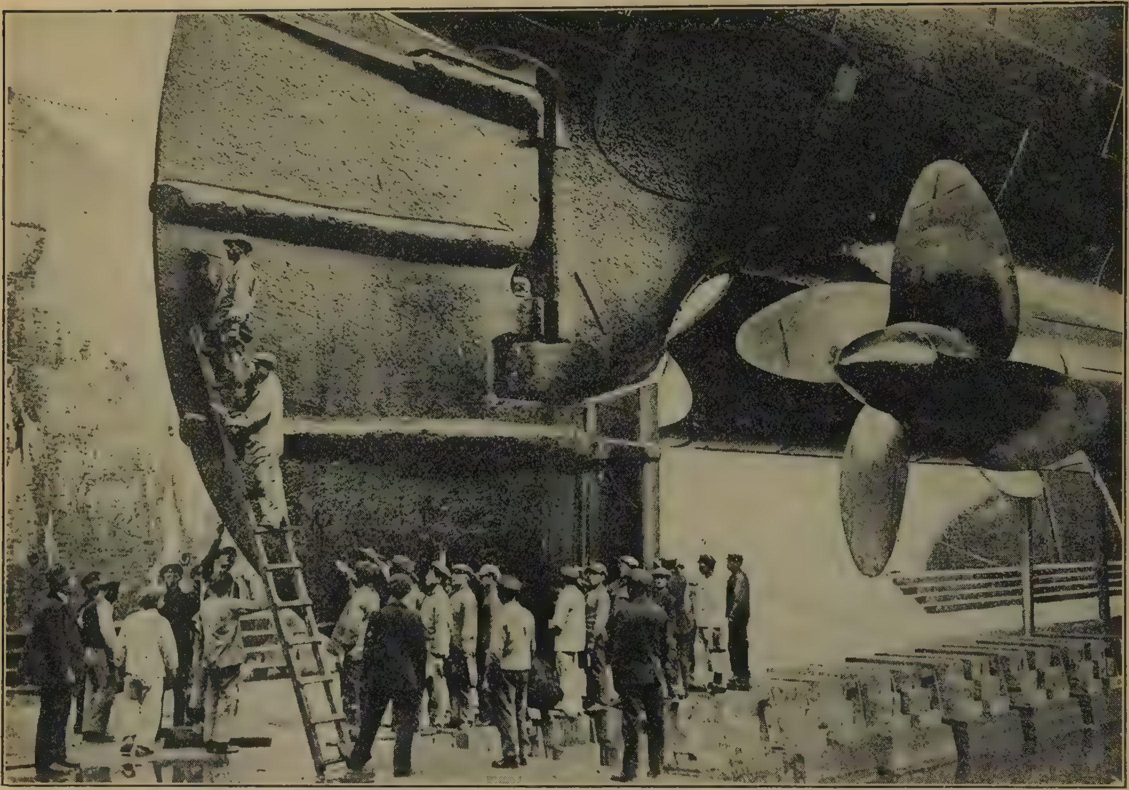
"Wait a second, wait a second," someone cried. It was a late passenger. He came running down the pier with a porter at his heels carrying a little trunk on his shoulder.

At the very minute this last man got on board, the sailors pushed the gangplank away from the ship. Her big black side began to move very slowly. Two puffy little tugs had put their noses up against the big ship and were pushing her out of the dock into the river.

The tugs take the steamer out into the river very slowly, more slowly than her own engines would do it. That is why tugs are used. They must be most careful in getting the steamer out into the river. There are many other boats in the river. The ship is so very big. She weighs many thousand thousand pounds. If she went out quickly, she might strike something.

There were hundreds of people on the pier and hundreds of people on the boat, waving hands and handkerchiefs and flags at each other. Everybody shouted "Good-by." The boys watched until they could no longer tell which man was Uncle Alfred. The ship was too far out in the river. As soon as the ship was away from the end of the pier, two more tugs pushed and pushed at her bow or front, until she was turned around. At last her bow pointed down the river toward the great sea.

Then the captain on the bridge, away up at the top of the ship,



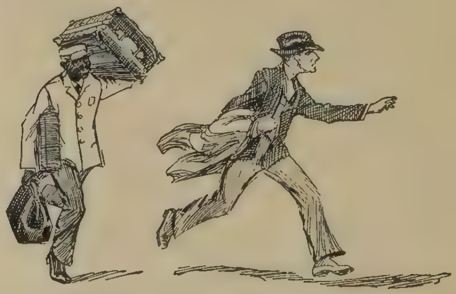
One of the two propellers at the back of a steamer. The engine turns them around and they make the ship move. The ship is now in a dry dock being repaired.

pushed an electric button twice. That was a signal to the engineer far down below the water line in the bottom of the ship to start the engines.

The propellers began to turn. They churned up the water behind the ship until it was foaming white. The smoke began to roll out of the smokestacks. The ship moved forward slowly down the river. In five days she would be in England, with Uncle Alfred and the other passengers.

THINGS TO THINK ABOUT

1. If you will take 200 long steps one way and 40 steps the other way, outside your school, you will see how large the top deck of the steamship was.
2. Why do steamships carry lifeboats?
3. If you know of any things that make the ocean safe for ships, tell about them.
4. What are the two ends of a ship called?
5. Why do all the people who run the ship have to be very obedient to their superior officers?
6. Look in the advertisements in newspapers from some large city to see what you can find about steamships sailing.



Read the story and tell who this is.

The inside of a freight shed on a large pier. We find such sheds in many coast cities.

FREIGHT FOR EUROPE

You know that when people say "Uncle Sam" they mean our country, the United States, and its people. In England the people sometimes say "John Bull" when they mean to speak of their own country, England, and its people.

When you have read this story you may want to play a game of ship, or a game of store, with Uncle Sam and John Bull buying and selling to each other.

When Jack was on the deck of the steamship, he had seen another steamer loading at the freight shed on the next pier. He had seen men at work there and heard them calling to each other. He had also heard the rattle of the winches.

He wanted to get on that steamer. He asked the man in a blue coat who had watched the gangplank of Uncle Alfred's boat about it.

"Just another one of our steamers," said the officer.

"May we go to see her load?" Jack asked the officer.

"You will have to ask Captain Lewis. He is the man in the office down by the gate."

"Who are you?" said Captain Lewis, after Jack, Joe, and Mary had at last found him.

"We are three school pupils," said Jack, "and we want to see your ship load. Will you let us? We promise to keep out of the way and we won't bother anyone."

"All right. I'll fix you up. Mr. Lynch, take this party around. They want to see how we load a ship."

"Where is the boat going, Mr. Lynch?" asked Joe.

"To England," replied Mr. Lynch. "She leaves at noon the day after tomorrow."

"Can they get all this freight moved into the ship by that time?" asked Joe.

"They must," said Mr. Lynch. "Boats that carry passengers cannot wait. This ship carries several hundred passengers and a lot of freight.

She was late getting to port this week, but she must sail away at the time the company has advertised that she will sail. At that time passengers will come with their trunks and suit cases, ready to go."

As they walked toward the gangplank, they passed piles of boxes and piles of barrels and piles of bales of goods. Everybody was working. Everybody seemed to be in a hurry to move the freight from the shed to the ship. Some men were pushing little two-wheeled trucks. Some were riding on little wagons that ran by electricity and hauled things to the side of the boat.

"My," thought Joe, "I hope they will be ready by sailing time, but I doubt it."

Mr. Lynch took them up the gangplank. He told them that the body (or hull) of the ship was divided into eight parts called holds.

"It wouldn't do to carry bags of flour and machinery together," said Mr. Lynch, "so we have the space divided."

At the top of each hold is an opening called a hatch.

"This is Hatch No. 1," said Mr. Lynch. "Its cover is off and you can look down into the hull of the ship."

It seemed a great way down that hatch. At the bottom there was nothing but wheat.

"That wheat is deep," said Mr. Lynch. "It is three times as deep as I am tall."

"Where is the wheat going?" asked Mary.

"Oh, that goes to England. We send over car loads and car loads of wheat to England almost every week."

As they stood looking into the hatch, a big bundle of boards swung over the side of the ship and paused a moment over Hatch No. 1. Then a man waved his arms. This was the signal to the winch man. He turned the engine so that the boards were lowered through the hatch into the hold.

A dozen men down in the hold stepped into sight, and they spread those boards on the wheat before the next bundle of boards went down.

In a little while the men had laid loose boards over all the wheat. Then they laid canvas covers on the boards.

"What goes next, Mr. Lynch?" asked Joe.

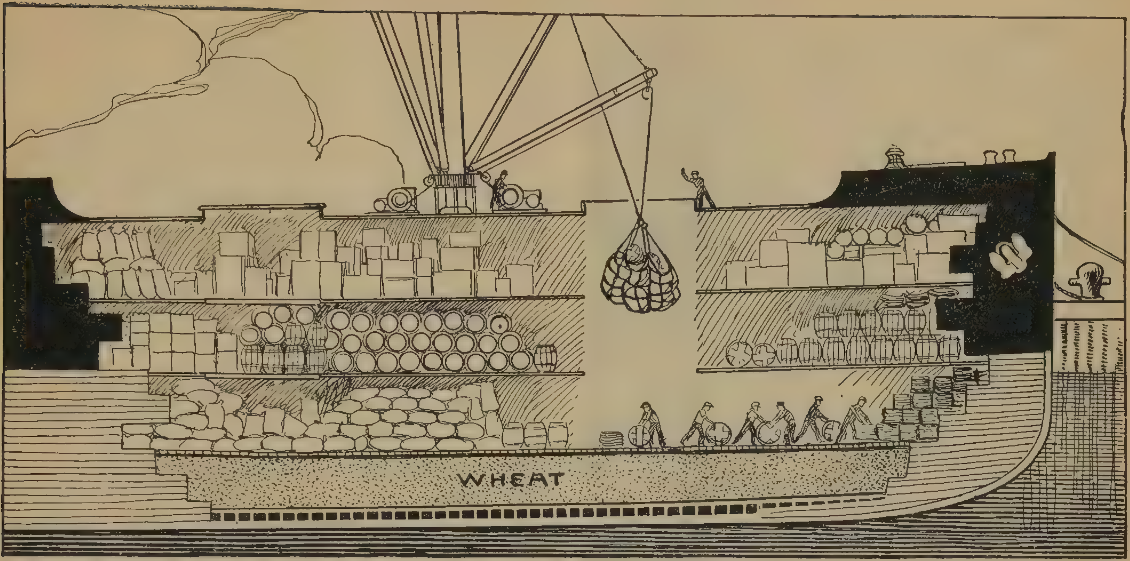
"Sacks of flour. Here they come."

The winch lowered a sling full of sacks. Then it lowered another sling full, and then another. The gang of twelve men were busily piling sacks of flour on top of the wheat.

"We have fourteen car loads of wheat this time," said Mr. Lynch, "and six car loads of flour."

As they looked down the hatch, they could see that there were two decks above the hold. Both decks were almost full of freight, but there was a little stairway down to them with just enough space left to squeeze through. By going one at a time Jack and Joe and Mary went down.

On the lower deck they saw piles of shiny white pieces of aluminum,



Looking into the side of a ship. The man holds up his hand and gives a signal to the other man on the top deck who runs the winch. Tell about the other things you see in the picture.

bundles of ax handles, and piles and piles of boxes marked "Condensed Milk."

"Look out for your head," called Mr. Lynch. Joe had stuck his head out into the hatchway as a sling full of flour sacks shot downward, just missing him.

The next deck had big, square boxes marked "Best Hams. Meat Packers, Chicago." There was nothing on this deck but hams. The visitors had to walk over ham boxes to get to the stairway.

"Who in the world can eat so much ham?" said Mary. She did not know that England has many people and many large cities. England has many cities and few farms, so that she must buy from other countries many things that are produced on farms.

"Come over to the second hatch," said Mr. Lynch.

"The hold here is full of oats, but the grain is covered with sacks now so that you cannot see it."

"What is in those sacks?" asked Mary.

"Sugar, refined sugar; a hundred truck loads of it."

The third hatch had shelled corn in the bottom. On top of the corn were barrels marked "Pure Lard," and many, many boxes of bacon.

The deck above was full of barrels of oatmeal and boxes of a kind of wheat cereal.

"I don't know what the English people would live on," said Mr. Lynch, "if we didn't sell them food."

"And I don't know what our farmers would live on," said Joe, "if they didn't get money by selling their wheat and corn and oats and hogs and milk to somebody."

There was a very long wooden box hanging by the ropes above one

Sixteen barrels of apples swinging over the ship's side.

hatch. This box was long and narrow. It was four times as long as Joe was tall. It seemed very heavy and the men were being very careful to get it into just the right position before letting it down into the ship.

"Machinery," answered the man when Joe asked about it. "Very heavy."

Just as they reached Hatch No. 4, a sling full of barrels went down it.

"Four, eight, twelve, sixteen; sixteen barrels in one sling," cried Joe.

"Yes, indeed," said Mr. Lynch, "sometimes they do that right along all day and all night if we are in a hurry. They will be working here tonight."

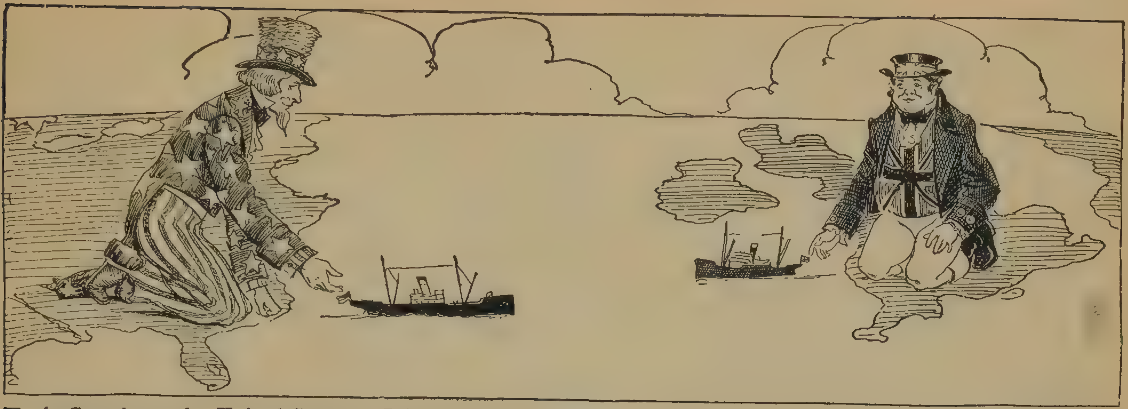
"What is in the barrels?" asked Mary.

"Apples, going to England. The apples have been kept in cold storage. We have a cold room in the ship. It is just like a cold-storage house. We shall keep the apples in that. There is one room that is colder than freezing. That is full of chickens and beef tongues, all frozen stiff."

"I wonder if our chickens are in it?" said Mary. "We sold some last week."

THINGS TO THINK ABOUT

1. Where is Europe? If any of your parents or grandparents came from Europe, find out in which country they lived.
2. England is a rather small country. She does not have enough farms to feed her many, many people. Most of her people live in cities. Tell what kinds of goods England exports. Tell what she imports.
3. In this country we have so much land that we can grow more food than we can eat. Tell how that makes trade between this country and England.
4. England is an island. Do you think that she could be a great country without ships? Give a reason for your answer.
5. The weather in England is a little too cool in summer to grow apples as well as they grow in our country. Tell how that makes trade between England and this country.
6. From what part of our country did Farmer Brown buy bran for his cattle? Do you suppose any of the wheat on this ship came from that place? How might it have come?
7. What would happen to England if she had no trade?
8. What would happen to any large city if it had no trade?
9. Why do so many railroads enter New York? Do you think they would all come there if New York had no steamers and no harbor? Explain.
10. Companies that send steamships from New York have offices in every large city in the United States. Why is this?



Uncle Sam is on the United States. John Bull is on England. What do they send to each other in their ships?

A CARGO FROM ENGLAND

When you have read this story, you can make a list of things that you have seen that are made from some of the freight mentioned.

As they walked out of the freight shed, Mr. Lynch pointed to many piles of boxes, barrels, and bales.

"All that," he said, "came over on this ship. We finished unloading it yesterday. You might almost say that England and Scotland are a kind of big city, and send us things from their factories. We send them different kinds of things to pay for the things that they send to us."

"What did the ship bring to us?" asked Joe.

"Well," said Mr. Lynch, "there is a pile of big bales. That is wool from Scotland. We do not have enough sheep in this country to grow all the wool we need. That wool will go to some cloth mill. Maybe some of it will be in the coat you wear next winter."

Joe and Jack and Mary started to read the writing on the piles of cargo that had come in the ship.

"Fire bricks, made in Wales."

Long, round rolls done up in sacking were marked: "Carpets, made in Scotland. Use no hooks."

A big pile of barrels had marked on each one: "Pickled Mackerel, made in Ireland."

There were many boxes of cotton cloth and woolen cloth, marked: "Made in England," or "Manufactured in Great Britain."

Hogsheads were marked: "Glass. Great care. Great Britain."

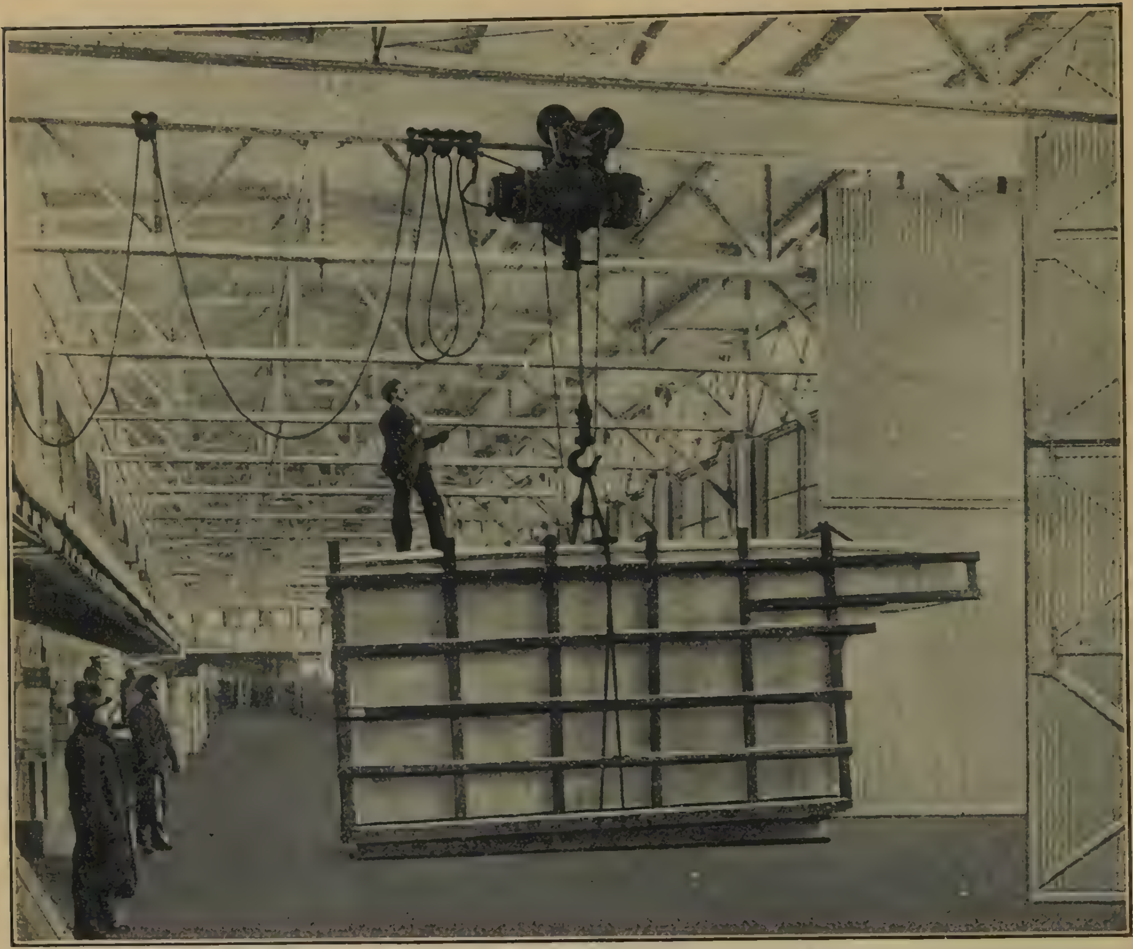
A very big, heavy box had been lifted by pulleys and ropes. It was machinery, marked: "I. C. Co., Chicago via New York. Made in England."

"Why how is this?" said Mary. "Here is machinery coming from England and only a few minutes ago we saw machinery going to England."

"Oh," said Mr. Lynch, "each country makes a different kind, then they trade."

THINGS TO THINK ABOUT

1. Suppose six boys went on a picnic, and one boy had six pieces of meat, another had twelve rolls, another had twelve hard-



The round, black electric motor at the top of the picture lifts the big box by means of pulleys and ropes.

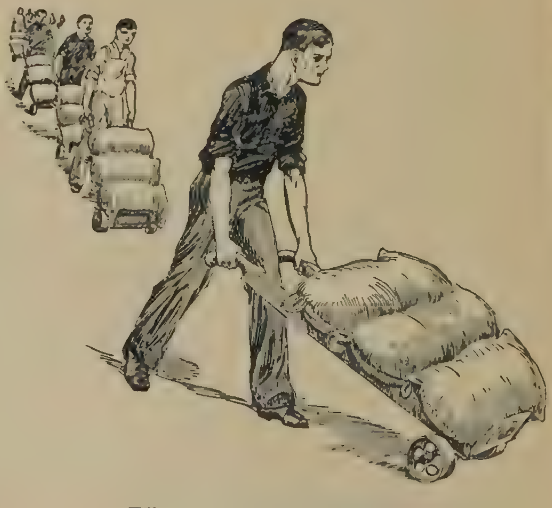
boiled eggs, another had twelve apples, another had a package of butter, and another had six cakes. What would they do when dinner time came?

2. If the story of the picnic dinner reminds you of something that different countries do, tell the class about it.

3. In what way does England need the United States? In what way do we need England? In what way do England and the United States need other countries?

4. Should we be on friendly terms with foreign countries? Give all the reasons you can.

5. How will the articles brought on the ship be sent to the small towns and villages all over the United States?



What are these men doing?

CROWDED STREET LIFE

When you have read this story, you may tell about the most crowded street you ever saw.

The visitors had been in New York ten days. Joe thought that he could find his way about the city by himself. Mary knew that she could. So one afternoon when Jack was busy with his delivery cart, Joe and Mary set out on an exploring trip all by themselves.

"Where shall we go?" asked Mary.

Joe thought a moment. "To ride on a bus on Fifth Avenue."

"Yes," cried Mary. "Hurry up, Joe!"

As usual, Fifth Avenue was full of people and automobiles and taxicabs. A big two-story bus passed almost every minute and sometimes two busses stopped together at the same corner to let passengers on or off.

Mary and Joe got on a bus and went up the steep, narrow little stairway at the back that led to the roof. On the roof were seats for about thirty people. It frightened Mary to be riding so high, and she was glad to see that there was a railing all around to keep people safe. Joe said that it was higher than a load of hay.

The bus went quickly down Fifth Avenue. The driver was very skilful. Wherever he saw a little open space he could make his bus go there. He could drive very, very close to the other busses without hitting anything, and he could stop his big bus at just the right place.

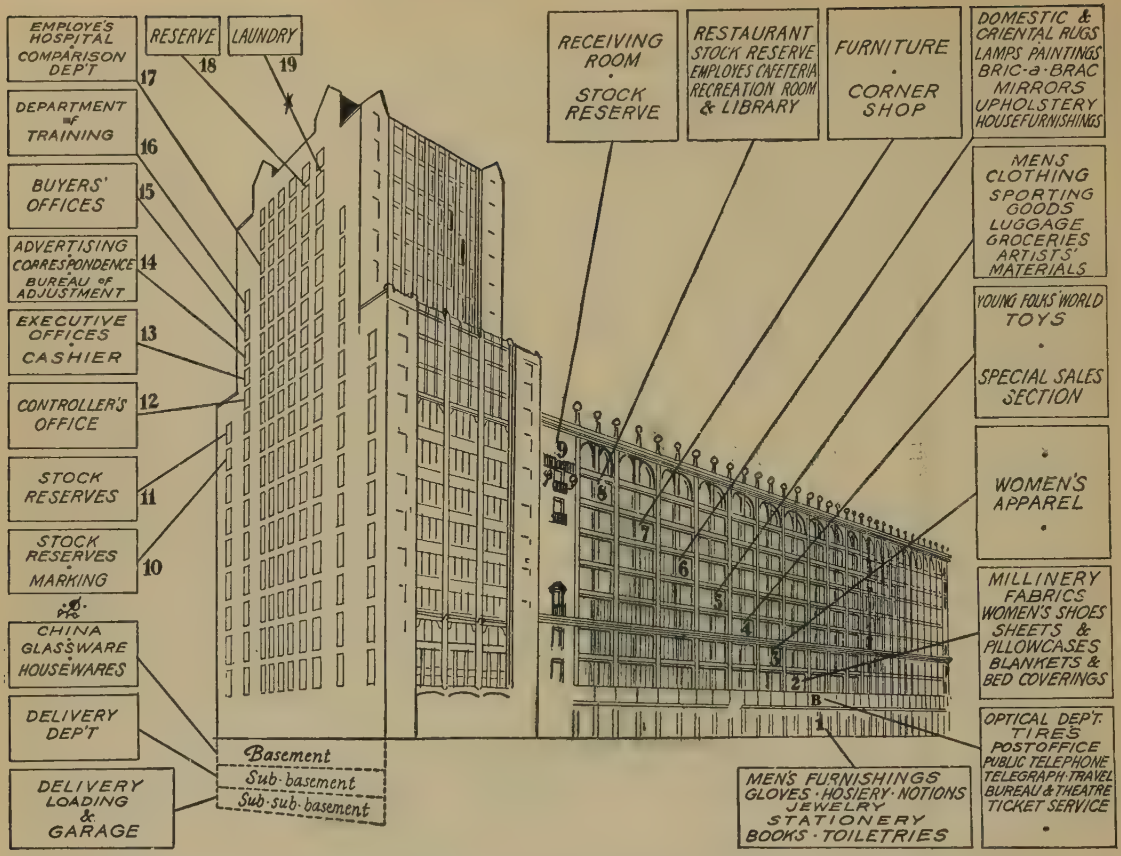
Joe and Mary rode down this street on a bus.

Joe thought it was wonderful to see a man driving so skilfully and stopping so suddenly.

"I wish that New York had some of the space that we have at home and do not need," said Mary, as the bus almost grazed another one. The driver stopped to let a boy and his mother get on. They came up to the roof. They sat down in the seat behind Joe and Mary.

The boy lived in New York. He was on his way home from school. He talked to Mary and Joe. The bus passed large hotels and many blocks of large and costly houses.

Then the bus began to pass many stores, where beautiful and costly things were for sale. Stores now lined


EMPLOYE'S HOSPITAL • COMPARISON DEP'T
17
RESERVE
18
LAUNDRY
19
DEPARTMENT of TRAINING
16
BUYERS' OFFICES
15
ADVERTISING CORRESPONDENCE BUREAU of ADJUSTMENT
14
EXECUTIVE OFFICES • CASHIER
13
CONTROLLER'S OFFICE
12
STOCK RESERVES
11
STOCK RESERVES • MARKING
10
CHINA GLASSWARE HOUSEWARES
DELIVERY DEP'T
DELIVERY LOADING & GARAGE
Basement
Sub-basement
Sub-sub-basement
RECEIVING ROOM • STOCK RESERVE
RESTAURANT STOCK RESERVE EMPLOYES CAFETERIA RECREATION ROOM & LIBRARY
FURNITURE • CORNER SHOP
DOMESTIC & ORIENTAL RUGS LAMPS PAINTINGS BRIC-a-BRAC MIRRORS UPHOLSTERY HOUSEFURNISHINGS
MENS CLOTHING SPORTING GOODS LUGGAGE GROCERIES ARTISTS' MATERIALS
YOUNG FOLKS WORLD TOYS • SPECIAL SALES SECTION
WOMEN'S APPAREL
MILLINERY FABRICS WOMEN'S SHOES SHEETS & PILLOWCASES BLANKETS & BED COVERINGS
OPTICAL DEP'T. TIRES POSTOFFICE PUBLIC TELEPHONE TELEGRAPH-TRAVEL BUREAU & THEATRE TICKET SERVICE
MEN'S FURNISHINGS GLOVES · HOSIERY · NOTIONS JEWELRY STATIONERY BOOKS · TOILETRIES
9
8
7
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5
4
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2
1
B

This picture shows a large retail store. This is called a "department store." The printing around the edge shows where the different departments are. How many stories high is this store?

both sides of the street. The boy told them they were seeing one of the finest streets in all the world.

The stores had very large glass windows in front. People on top of the bus could look down and see the lovely things. The window of one store was filled with pictures; another had books; another, clothes for children. As the bus passed store after store, Joe thought that they must be seeing everything that is for sale in all the world.

"Oh, I wish I had a lot of money," said Mary, as she saw a window with nothing but two beautiful dresses in it. "I would like to take that dress to mother."

"Look, Mary," said Joe, "there is a shop full of birds in cages. Just see that parrot with a green tail as long as my arm. I would like to take him home."

At every street dozens and hundreds of people were crossing the avenue and going toward the east side of the city. "These people are going home from work," said the boy. "They live on the East Side." Such a crowd as it was! Crowds of men and boys who worked on the docks and in the cold-storage plants and factories! Crowds of women and girls from the shops where dresses and coats and suits were made and sold! These people were hurrying home from work. The sidewalks were full of them.

"Come on," Joe said. "Let us see where they go."

With a hurried good-by to the boy and his mother, Joe and Mary left the bus and went along with the crowd. They crossed two streets with elevated railroads on them. People were pouring out of the stairways that came down from the elevated stations.

This did not seem at all like Fifth Avenue. Many of the houses were old. They were not pretty or costly. They looked dusty and dirty. Most of the shop windows were not pretty. They were piled full of things. Some of the windows needed washing. The people did not wear such good clothes as the people on Fifth Avenue wore. Joe stood still and looked back. Was it really true that Fifth Avenue and the East Side were so near to each other?

"I walked from one to the other in about ten minutes," thought Joe. "What a difference in the way people live!"

Mary thought the street they were on should have been called "Push Cart Street." A row of push carts lined the sidewalks as far as she could see.

The first cart had a square iron body and a stove pipe sticking up. Smoke was coming out of the pipe.

"That's funny," said Joe. "I never saw a cart with fire in it," and he stopped to look.

"Have a hot potato?" said the man by the cart. He pulled out a drawer full of baked sweet potatoes, steaming hot.

"Five cents apiece," said he; "half of one for three cents," and he cut one open with a big butcher knife. He kept his fire going with the wood from the cherry boxes and orange boxes that were left by the fruit-cart man next to him.

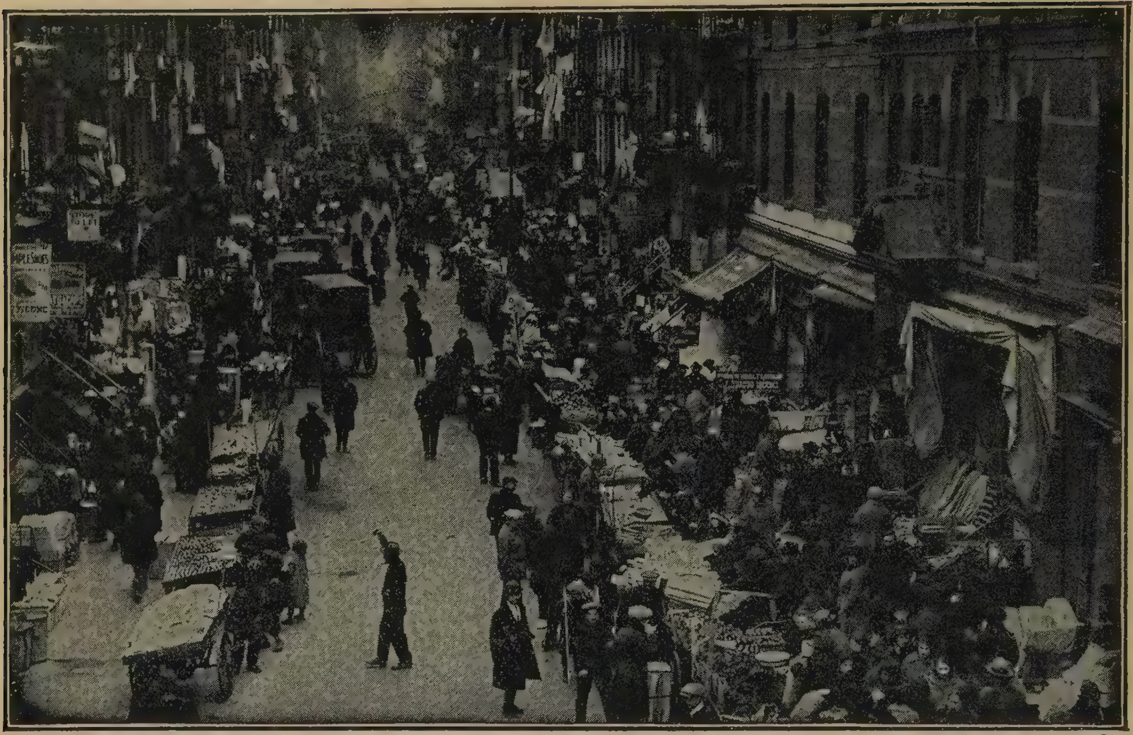
Next to the fruit cart stood a pickle cart, piled high with pickled cucumbers and pickled green tomatoes. This man sold nothing but pickles. Just then a man stopped to buy a pickle. He paid one cent for it, and ate the pickle as he stepped over to another push cart where he bought a sandwich.

Mary liked the next cart best. It was loaded with coconut candy and lollipops. Joe bought a lollipop for each of them.

The next cart had socks at ten cents a pair, and cheap cotton gloves. The next cart had only handkerchiefs, the next brushes, brooms, and hammers.

An old man with a long, gray beard had a cart load of books. Most of them were old books. Some of them were printed in letters that Joe and Mary did not understand.

There were also many signs on the shop windows that they could not



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A street in the east side of Manhattan Island. Pushcarts carry goods for sale. Tell about all that you can see in this picture.

read. Often Joe and Mary did not understand a word that was said by the people who were talking in the street. They were not talking our language. Many of the people here had come from other lands. They were still talking in the language of their home countries. There were many languages on that one street, and oh, so many people!

"Joe, I would rather live in the country," said Mary. "I feel homesick for green grass and trees, and I do so want to pet the horses and give Speckle and the chickens some wheat to eat."

"Look," said Joe; "let us see what those children are doing."

Three little boys and a girl were having a game in a corner beside the steps of a house. They were pitching checkers to make them lie on little squares that were marked on the sidewalk with chalk. The children were busy most of the time dodging the people who passed by.

The houses were four or five stories high. Often four or five or six or seven families lived on one floor. Sometimes there was only one room for a family. That is why the street was so full of people. There were so many people that they were glad to get out of the crowded houses. Many sat on the steps of the houses. Mary saw so many babies that she began to count them. Some of them were in the laps of old women who

A play street in a large city.

sat on the steps, some were carried in the arms of small girls.

"This one is a dear," and Mary stopped to pat the cheek of a black-eyed baby who sat in a soap box on the pavement. She counted twenty-one babies in one square.

New York has so many, many people. This makes land scarce. This makes land costly. This makes house rent very costly. This makes many families live in one street. This makes the city a very crowded place. This part of the city was so very full of buildings that there was not even a yard near the public schoolhouse.

Joe and Mary passed one block that was called a play street. At certain times of the day no automobiles were allowed to go through this block unless they had to stop at a house in that block. This gave the children a better chance to play in the street, but they often had to get out of the way of automobiles.

THINGS TO THINK ABOUT

1. Why do so many foreign people come to live in New York?

2. Would you rather play on a play street in a large city, or on the Brown farm? Explain.

3. New York has many hotels and many visitors stay there for a time. Why do these people come to visit New York?

4. The shops on Fifth Avenue have to pay high rent. What is rent?

5. Two children may pretend they are Joe and Mary taking a bus ride. Two other children may pretend they are Joe and Mary exploring the East Side. Tell all the things Joe and Mary might have said to each other on these trips.

The Star Athletic Club has the floor this hour.

THE BOYS' CLUB

As you read this story, think what you would do with your money if you were grown up and had more money than you needed.

At dinner that evening, Joe and Mary were telling about the things they had seen that afternoon.

"That reminds me," said Mr. Reed, "of Fred Semple. Fred works in the place where I work. He is a bookkeeper. He has often told me about the Boys' Club on Avenue A. He spends every Tuesday evening there with a club of boys. He is a kind of big brother to them. He has often asked me to come over some time. He wants to show me the club house. This is Tuesday evening. Would you boys like to go with me?"

"We surely would," they said in the same breath.

When Mr. Reed and the boys got to Avenue A, they saw a large stone building seven stories high.

"This club idea had a small beginning," said Fred Semple as he started to show them the building. "Many years ago there were no clubs in this crowded part of the city. The street was about the only place for boys and girls to go for play. There are 3500 children to the block down here. Then one spring two ladies started a sewing class for girls. It met three evenings a week in a basement. On hot nights, when the windows were open, boys on the street teased the girls by throwing things through the windows into the sewing room. The kind man who had bought the furni-

This was the night the parents visited the Boys' Club.

ture for the sewing room heard about this. Now what do you think he did? Of course he might have called the policeman to arrest the boys. But he did not. He said, 'These boys are not bad boys; they need something to do.' So he fixed up another basement for the boys. He made it into a gymnasium where they could exercise, wrestle, and play games. Then they stopped bothering the sewing club."

"Lucky for the boys that the man with money to spare wanted to help out," said Mr. Reed.

"Yes," replied Fred Semple, "the children down here surely need good friends.

"The gymnasium had to be made larger and then larger, as more boys began to come to the club. Now at last we have this nice, big club house. It has a fine gymnasium, a swimming pool, an auditorium that holds 500 people, and many club rooms. The boys' clubs meet in these rooms.

"Every one of these boys' clubs has a college student or a young business man who meets with them. He is their 'big brother.' All of the clubs are studying something. The Mozart Club studies music. They are practicing tonight for a concert. They are up in the auditorium. Four hundred people are listening to them. It is good music."

"Have you a club, Mr. Semple?" asked Joe.

"Yes, indeed. My club is the Star Athletic Club. They are meeting now in Room 28, second floor. Would you like to go up to look

A meeting of the Star Athletic Club. Tell about the boys who are standing.

at the gymnasium and then come in and visit us?"

When Mr. Reed and Jack and Joe went into Room 28, they saw a row of boys sitting on benches down each side of the room. At the end two boys sat at a table. These were the President and the Secretary of the club.

"Are there any announcements?" asked the President.

The captain of the Star Athletic Club's basket-ball team stood up and said: "The Star Athletic Club has beaten the Apollo Athletic Club at basket-ball." The boys clapped. One of the boys stood up.

"Mr. President," he said, "I move that the club buy stockings for the basket-ball team and pay for them with money from the treasury."

Several boys talked about this.

"Are you ready for the question?" said the President. "All those in favor say, yes. All those opposed say, no. Nineteen yes, two no. The motion is carried."

Just then Mr. King came in. He was the superintendent of all the clubs.

"Stars, I have some good news for you tonight. First, we want to have a night when you intermediate boys can bring your parents. We shall have a little show in the auditorium, and then you can escort your parents over the building.

"Second announcement, entries for the swimming contest close tonight.

"Third announcement, our senior baseball team is going to play the Crescent Athletic Club Saturday after next. It is a good chance to see the country and have a good time. We want a lot there to cheer for our team. How many tickets will the Stars take? Tickets cost 20 cents each."

What can you tell about this picture?

Practice in one of the club rooms.

"We shall take twenty-five," said the President of the club.

After the Star club meeting was over, Fred Semple showed Jack and Joe the swimming pool. It was the first swimming pool inside a house that Joe had ever seen. There were a large number of boys swimming in it. They were making lots of noise and having a fine time diving, splashing, and shouting.

"This pool is busy," said Fred Semple. "There are seventy-four different boys' clubs like the Stars and the Apollos. They all use the rooms of this one club house for a meeting place. Each club has the pool for an hour each week. It also has the gymnasium for an hour each week. Some days the pool is full every minute from nine o'clock in the morning until ten o'clock at night. Every week we have a movie which is shown eight different times. Club members and their friends can see it at a moderate cost.

"There are twenty-seven more boys' clubs waiting to join as soon as there is room for them. There are many hundreds of members. Each one pays to belong, and if a boy does not help to take care of the building and behave well, he cannot belong to the Boys' Club in Avenue A.

"In summer we have a camp out in the country. There are four hun-

Playing ball at the summer camp of the Boys' Club.

dred fifty boys there all the time. Each boy who goes usually stays two weeks.

"This camp is kept in order by students and young business men from the city. Each one of them is the leader or big brother to a group of boys just as I am to the Star Athletic Club.

"You just ought to see how those boys eat. Well, they eat aplenty, and they gain in weight while they are at the camp. They come home brown with sunburn. Many of them learn to swim while they are there. We have a small lake. There is boating and hiking and hill climbing. Some of the boys study the birds and plants and learn about nature. It is a good place to learn."

THINGS TO THINK ABOUT

1. Organize your class as the club in Room 28 was organized and discuss what the school board might do to improve your school. Then discuss what you might do to improve your class work.

You may discuss many of the "Things to Do" in this book in that way if you wish.

2. What do you think happens to a boy who whittles the furniture in the club house in Avenue A?

3. Why do you think it is a good thing for a city boy to belong to a boys' club?

4. What kind of pay do you think Fred Semple got for being big brother to the Star Athletic Club boys?

5. Who had the better chance for exercise—Joe Brown on the farm or the members of the Star Athletic Club?

6. Do you think a city should take care of its many boys and girls who have little room to play and not much to do? Why?

7. Write a story such as Joe and Mary might tell to their father and mother about New York when they get home.

8. Make a list of all the things the children saw in New York that you could not see near your home.

A tomato patch on Mr. Hart's farm.

PART III

A TRUCK FARM NEIGHBORHOOD

A TRUCK FARM

Perhaps your teacher will get a map and show you where Jack took this journey from New York to the level truck-farm neighborhood.

Joe and Mary stayed in New York for two weeks. Then they went back to their home. Jack wanted to go with them. There was so much room at the Brown farm. He wanted to be out of doors and in the fields. He liked living in the country with Joe and Mary. After living in the farmhouse for a year, the apartment seemed to be a small place in which to live. The street seemed small for play. There was no work in the city that he wanted to do. But he liked to pick cherries, to drive the horses, and to load the hay wagon.

Mr. Reed had another idea. He said that it would be better for Jack to see another place, and to learn new things. So the week after Joe and Mary went home Jack went off to a farm in the eastern part of our country. It was owned by Jack's father's cousin, Mr. Hart.

Jack had another railroad journey. He was more pleased to take this trip than the one he took the year before. He had not said anything about it, but he had been just a little bit afraid when he had started off to the Browns'. But now he

A truck farm. What crop are the boys picking?

was older, and besides he had been on a train by himself before. This time he thought it was real fun to be with strangers for six hours. His train passed through four cities, crossed two rivers, and went a long way through a country where there were no hills.

When he got to Mr. Hart's station, he stuck a piece of white paper in his hat band. His father had written that he would do that so that Mr. Hart would be sure to find him. Mr. Hart's two boys were with him. Fred Hart was one year older than Jack and Bill Hart had finished high school.

The Hart farmhouse was much like the Browns', but the Hart farm did not seem a bit like the Brown farm. The Brown farm was a dairy farm with sixteen cows. The Harts had only one cow, and they did not sell any milk. There was only a very small pasture field for the cow. The four mules lived in the barn most of the time and ate hay and corn. There were no stream, no pond, no woods, and not a hill anywhere. The earth was all soft and sandy. All the land was about as level as a good baseball field.

The Hart farm was a truck farm. A truck farm is one where vegetables are grown to sell.

At supper Mr. Hart said that they were going to harvest peas the next day. Jack remembered how he had picked peas in the Browns' garden the year before, so he asked if he could help.

"Yes," said Mr. Hart, "you can help to load."

Jack did not understand what that

meant, but he said that he would be glad to help to load. He did not tell anybody that he did not understand.

"I guess I can do it, whatever it is," thought Jack, "for haven't I helped with the work on a farm for almost a year?"

Early the next morning Jack went with the boys to the barn where the hired man was harnessing the mules. This hired man, Pete, was a negro whose skin was shiny black. He lived in a little brown house down the road. Pete took care of the mules. He was good to the mules, and they obeyed when he spoke to them.

Mr. Hart had a whole field of peas. Pea vines covered the ground just as grass covered Mr. Brown's hay field. Bill hitched two mules to a mowing machine and began to cut down pea vines as though they were hay. That was not the way the Browns did, but Jack said nothing.

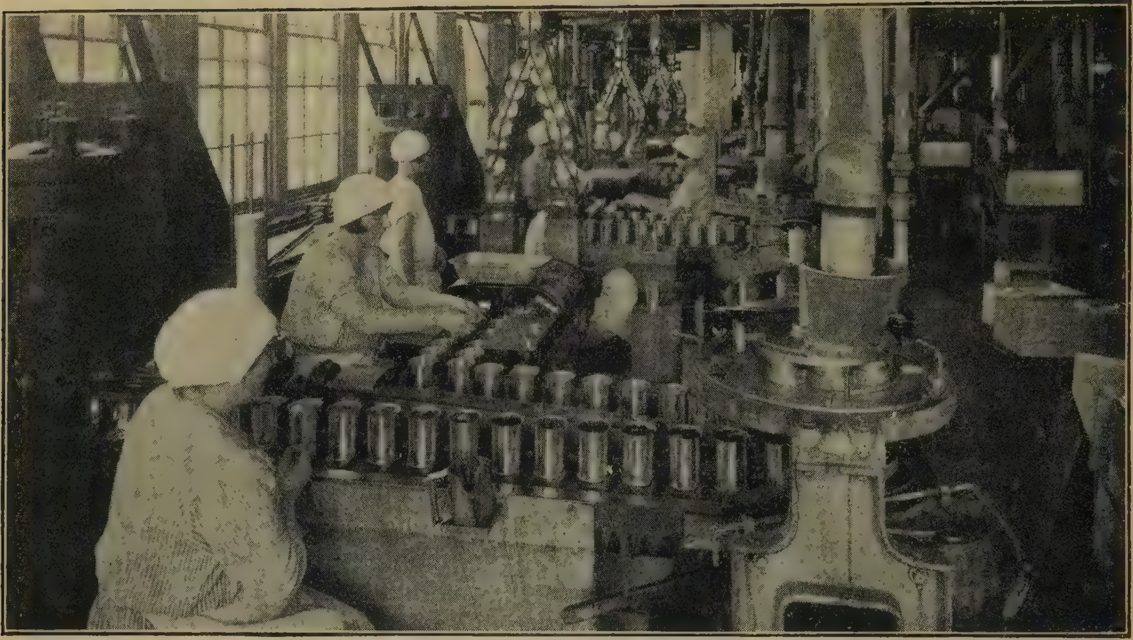
Jack noticed that there were long rows of piles of pea vines which had been cut the day before. It made him think of the hay field at the Brown farm. Mr. Hart and Pete pitched those green vines on the wagon to Fred and Jack, who loaded the wagon just as Jack and Joe Brown had loaded hay the year before.

When the wagon was loaded, Fred and Jack drove a mile and a half over the level road to town. They went to a long, low building near the station. It was a canning factory. The peas were to be made into canned peas such as you see in any grocery store. There were eight other wagons waiting their turns to unload, for many of Mr. Hart's neighbors grow peas for the cannery just as Mr. Brown's neighbors keep cows and ship milk.

One of Mr. Hart's neighbors grew potatoes and corn. His hired man and mule are planting corn between rows of potatoes.

THINGS TO THINK ABOUT

1. How are peas harvested in small gardens?
2. Why did the Browns keep many cows and the Harts only one?
3. Have you ever seen a truck farm or a place where vegetables were grown for sale? Tell about it.
4. What kinds of fresh vegetables are sold near your school?
5. Try to find where these vegetables are grown.
6. Which is easier to send to market—fresh vegetables or wheat? Explain.
7. Why are truck farms often near cities?
8. Which would be the better place for Mr. Hart's truck farm—on hilly land or on level land? Tell why.
9. What are some things your father would think about before buying land for raising vegetables?



Filling and closing the cans in a canning factory.

CANNED PEAS

When you have read this story, think about the city bakery that made so much bread. How does the canning factory remind you of the bakery?

While the boys waited for their turn to unload the peas, Fred showed Jack through the factory.

The pea vines with the pods on them were taken from the wagon and thrown into a machine. It was very much like the threshing machine on the large wheat farm. This machine tore the vines to pieces and broke open all the pods. A long moving belt of canvas carried the vines to the end of the shed and dropped them into the wagons of farmers who took the pea vines for their cows and other animals to eat.

A steady stream of shelled peas rolled down a spout into buckets. The buckets of peas were set on a moving belt. This belt carried the buckets to the second story of the factory. Here a man emptied the peas into a big sifter with small round holes in it.

The smallest of the peas fell through the holes of the sieve. Little peas are the best, and they sell for the highest price.

The peas that stayed in the sifter were put through another sifter, the holes of which were a little larger. This let out the peas that were a little larger than the smallest size. In this way the peas were sifted into four different sizes. There were tubs and tubs of peas, for more wagons kept coming all the time, and the thresher was threshing and the sifters were sifting as fast as they could.

See the big iron tanks. After the cans are sealed, they are put in these tanks. The lids are fastened. The food is cooked by steam. The man at the left is putting cans into the cooker.

Great quantities of tin cans were stored in the room above. They were waiting to slide down through a hole in the ceiling. They slid down a spout beside a filling machine. The tubs of shelled peas were dumped into a machine. Then this machine grasped the cans almost as hands would do. It filled them just full enough, and passed the full cans on to a carrier which moved them along to the next machine. It was that machine's job to fasten a round tin lid tightly on the top of the can. This took only a second, and then another can came, and another, and another, and another. Without stopping, the machine passed out the cans of peas with their lids shut tight. As long as the cans were air tight, the peas would keep. Not once had hands even touched the peas. From the time they were taken from the wagon until they were shut up in their cans, machines had done all the work.

A man stood by the machine that closed the cans. He packed two hundred cans into a strong, iron box. The box was as big as a barrel. Presently this box was lifted by a chain and let down into a large round cooker. Then two more boxes were put in on top of it, and the lid on the cooker was shut. The cooker man turned a handle. This let steam from the boiler into the cooker. The three big boxes of canned peas were all cooked at once with steam. There were ten of these big cookers in a row at the end of the room. One man attended to all of them.

After the peas were cooked in

Stacks of canned goods in a canning factory.

the cans, they went back into the warehouse. It held hundreds and thousands of cans, ready to go away to many grocery stores.

"Fred," said Jack, "this is much faster work than the Stark girls or Mrs. Brown could do in their kitchens."

"So it is," replied Fred, "but after all it is the same kind of work—it is canning foods for winter use."

Read the label on the picture of the can of peas shown at the bottom of the page. Jack was anxious to see how these labels were put on the cans. In one corner of the warehouse two men and two girls were running the labeling machine and packing the cans into boxes.

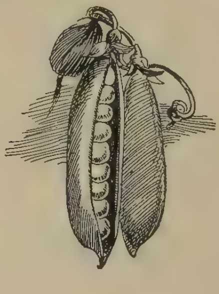
One of the girls picked up a shiny can of peas and laid it on the labeling machine. The can rolled across the machine. The other girl caught it and put it into a box. But the can of peas now had a label on it. How was this? As the can rolled across the machine, it rolled across a label with glue on it. The label stuck to the can, just as a wet postage stamp would stick to you if you sat down on the sticky side of it.

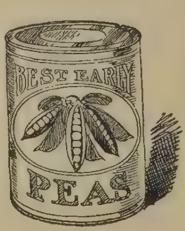
Every time a can rolled across the labeling machine, the machine put glue on another label ready for the next can, and the next, and the next, and the next. As fast as the cans could roll past, they picked up their own labels.

"It is too bad someone can't think up a scheme like that for picking up potatoes," thought Jack.

THINGS TO DO

1. Make up a story about the family of peas in the pod at the bottom of this page.
2. Make a list of some of the different kinds of canned vegetables which are for sale in the grocery store nearest to your home. (Most of the other vegetables were canned as the peas were canned.)
3. Make a collection of labels from cans of food. Perhaps your teacher will point on a map to the places named on the labels.
4. Make a list of all the kinds of work that you can think of that helped to put the can of peas on the shelf of your grocery store.





Point to the tractor in the picture. Point to the boy who is sitting on a seed drill. The seed drill plants many rows of seeds at one time.

THE TRACTOR AND THE SUGAR CORN

See if you can tell how this story reminds you of a double play in baseball.

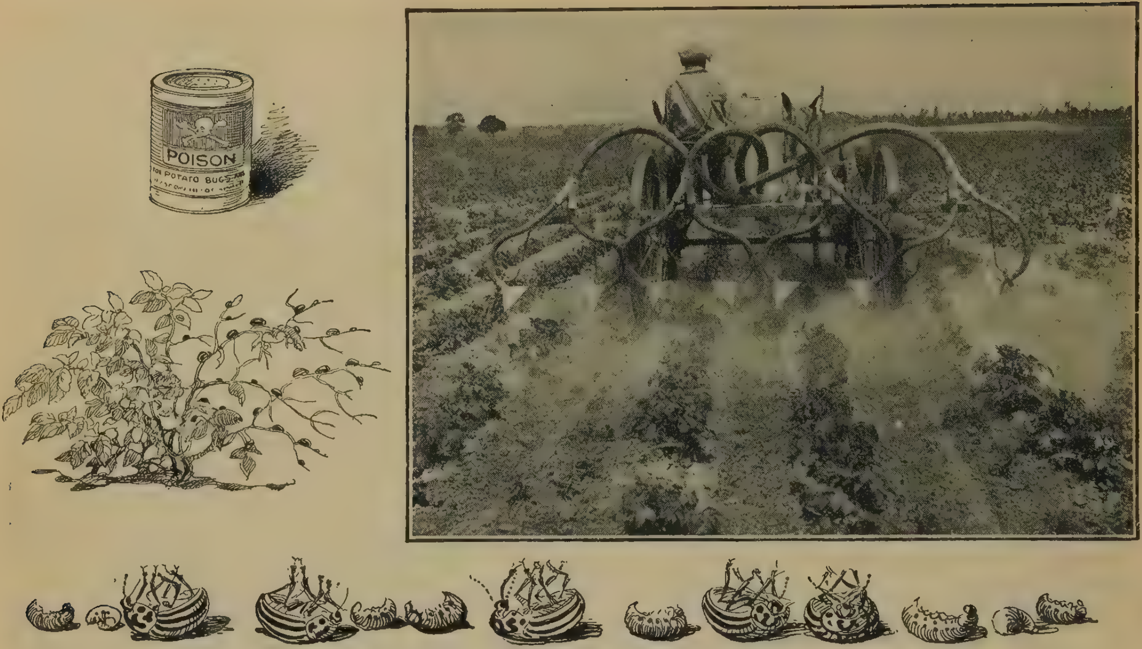
When Fred and Jack got back to the pea field with the empty wagon, Mr. Hart was already plowing the ground from which the peas had been taken. He was using a tractor which pulled two plows at one time. This was easy to do in the soft, sandy soil. This farm did not have a single stone as large as a man's fist on it.

Mr. Hart was in a great hurry to plow up the field where the peas had been, because he wanted to plant sugar corn in the field. If he was quick about it, the corn would have just time enough to ripen before frost came in the autumn. Then he could send the corn to be canned as his peas were canned.

The factory that canned peas in the early part of summer was very busy canning corn and tomatoes later in the summer. Sometimes it also canned beans and pumpkins. By this means the man who owned the factory kept his machines busy for a longer time.

THINGS TO THINK ABOUT

1. Tell how Mr. Hart managed to grow two crops on the same field in one year.
2. How did the tractor help with this?
3. How does sugar corn differ from the corn that grew on Mr. Brown's farm?



Tell about all the things you see in this picture.

THE POISON AND THE POTATOES

This story tells how man has to fight for his crops, as well as work for them.

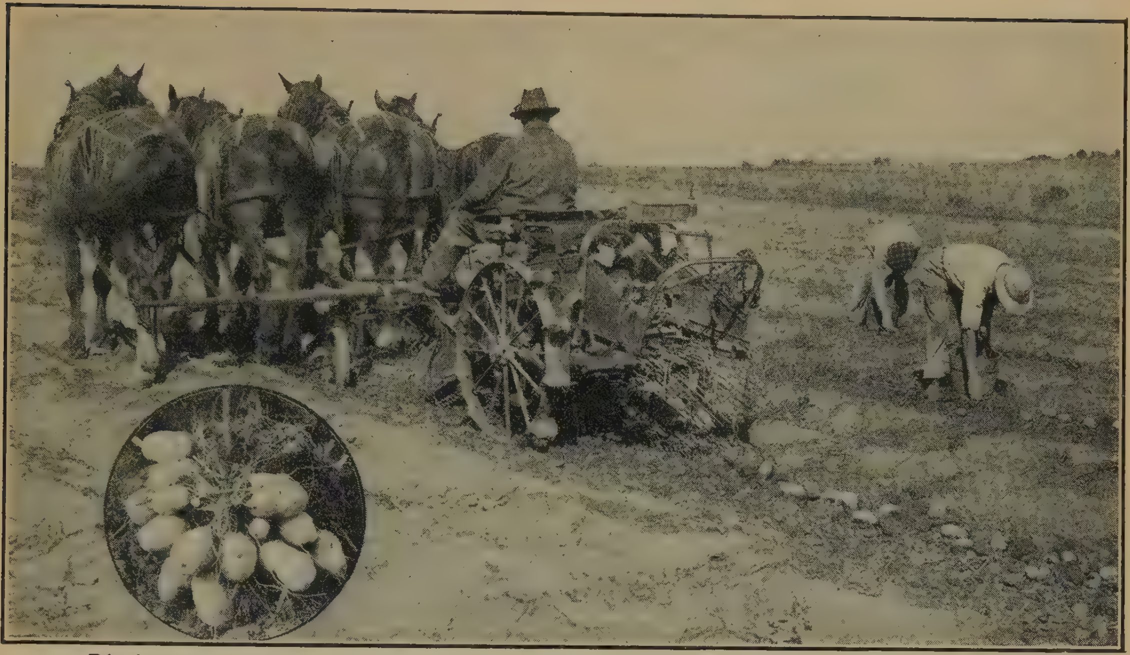
"My, but the bugs are getting after the potato vines!" said Mr. Hart the day they finished hauling the peas to the factory. "Bill must get after those bugs." And Bill did.

If the bugs eat the leaves off potato vines, the vines do not have strength enough to make good potatoes. When Fred and Jack got back from taking the last load of peas to the canning factory, they found Bill driving back and forth across the potato field. He was riding on a tank and it had smoke behind it. Jack thought it was smoke, but really it was just a fine mist of water with poison in it. The poisoned water wet the vines all over. This work is called *spraying*.

After that every bug that bit a vine, turned up all his little toes and died. Because Bill had sprayed the potatoes, Mr. Hart had a good crop of them in his big field. Mr. Hart raised potatoes to sell, and it made a great deal of difference to him if bugs ate the leaves of his potato vines.

The Browns had only a few rows in their garden, so they did not bother to spray their potatoes. Instead someone picked off some of the bugs by hand.

The plants which supply us with food have many insect enemies. These enemies may be killed by the use of poisonous sprays. Perhaps you can tell how the birds help to protect our crops.



Digging and picking up potatoes. Count the number of potatoes on the vine shown in the circle.

DIGGING POTATOES

The railroad that passed Mr. Hart's station had two tracks. It was a very long railroad. It reached to the southern part of our country. In the early spring, while the ground at the Harts' was still frozen, many car loads of green, fresh vegetables came up from the South. For weeks before Mr. Hart's potatoes were ready, car loads of new potatoes were going north over this railroad to many large cities.

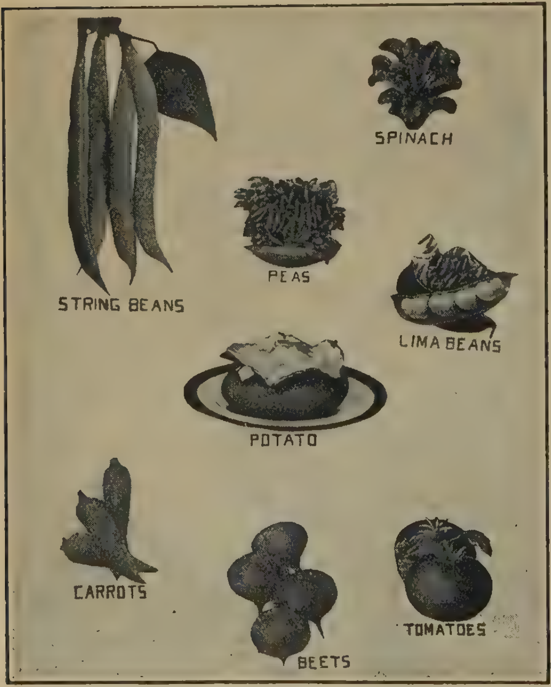
Mr. Hart's potatoes were ready to be dug late in June. Pete drove two mules which pulled the potato digger. This machine stuck its iron fingers down under the potato vines. It lifted out a clump of dirt and potatoes. Then it sifted out the dirt and laid all the potatoes in a row on the ground.

Fred and Jack picked up the potatoes. Pete's two small boys helped, and so did two strange men who came to help with this job. Before the first day's work was over, Jack found that picking up potatoes was the hardest work he had ever done. Stooping over hour after hour made his back ache. The sun seemed to burn hotter than he had ever before felt it.

Mr. Hart had a whole car load of potatoes to sell. Jack was very sure that if there had been many more, he would have left that farm.

Mr. Hart stayed at the barn most of the time to take charge of sorting. He was very careful to see that every potato he sold was a good potato. They sorted the potatoes into firsts and seconds and culls. The culls were fed to the pigs.

A potato field with rows of potatoes as the digger left them. Why do you think this field of potatoes reminded Jack of a back ache?



Vegetables that are good for boys and girls to eat.

The others were put into barrels, taken to the station, and shipped to several large cities.

THINGS TO THINK ABOUT

1. This story tells about potatoes that come from the South while it is still cold in the North. What other foods have you read about in this book that come from the South?

2. What would have happened if Mr. Hart had not had his potato vines sprayed?

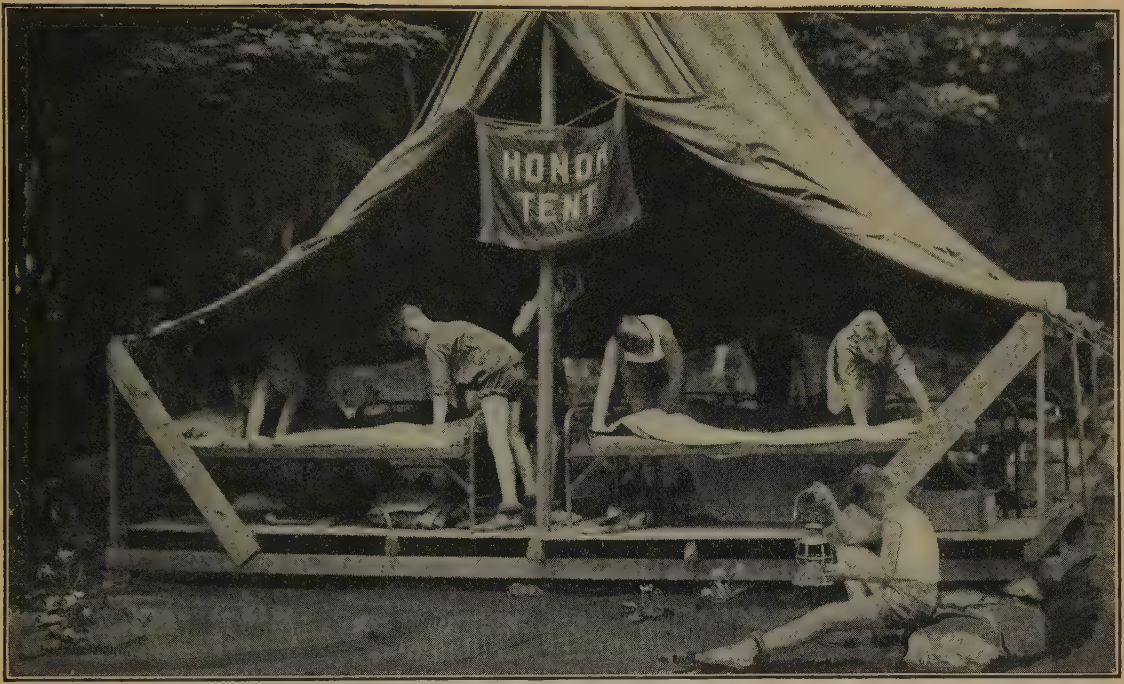
3. Perhaps someone can tell of some other crops that are sprayed.

4. What would have happened if Mr. Hart had put some very small potatoes in with those he called first-grade potatoes?

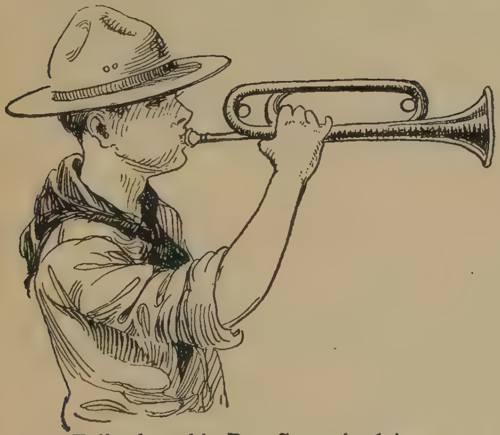
5. If you never have seen potatoes growing, you might like to plant a potato in a box of earth in the schoolroom.

6. Does it make any difference to the people in the city whether the farmers have good crops or poor crops? Explain.

7. What do you think is the most important industry in the world?



Tell about the things you see here.



Tell what this Boy Scout is doing.

THE BOY SCOUTS' CAMP

After you have read this story, tell why the boys liked to go camping.

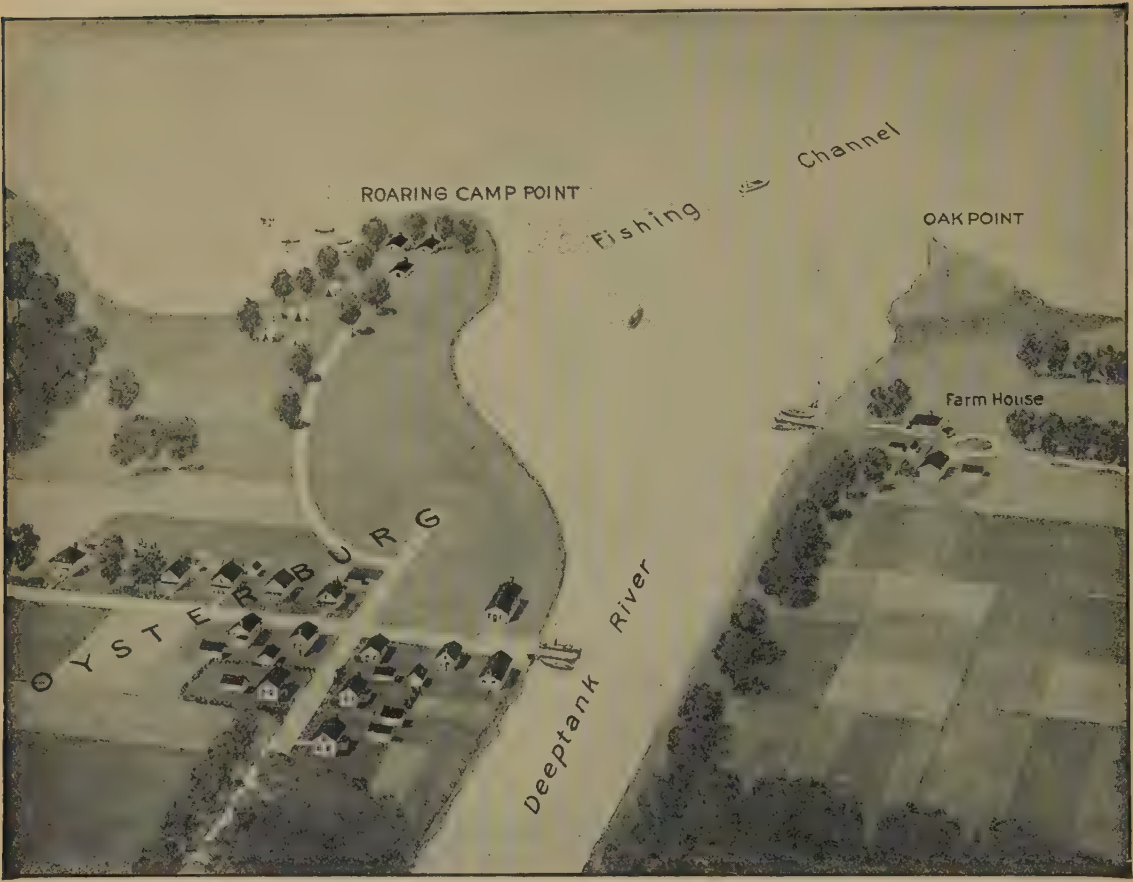
For three summers Fred Hart had gone camping with the Boy Scouts. It was the best week in the year for Fred. They always went just after the potatoes were sent to market. That was a time when farmer boys in that neighborhood could be spared from the farm work.

The scoutmaster said that Jack could be a member of the camp this summer, because he had pluck. Picking up potatoes all day long for four days showed that he had pluck. Everyone was glad to have him as a member of Roaring Camp.

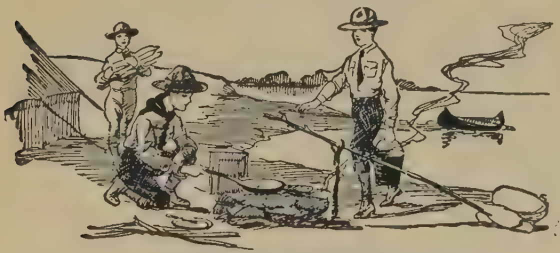
There were fifteen boys besides Mr. Tyler, the scoutmaster. Four people slept in each of the sleeping tents. They had camp cots that could be folded up when not in use.

There was one larger tent that was called the mess tent. They ate in the mess tent.

The boys took turns at cooking. All that troop of Boy Scouts knew how to cook well enough to



View of the camp from an airplane. Read the story and find the place that is an island at high tide.

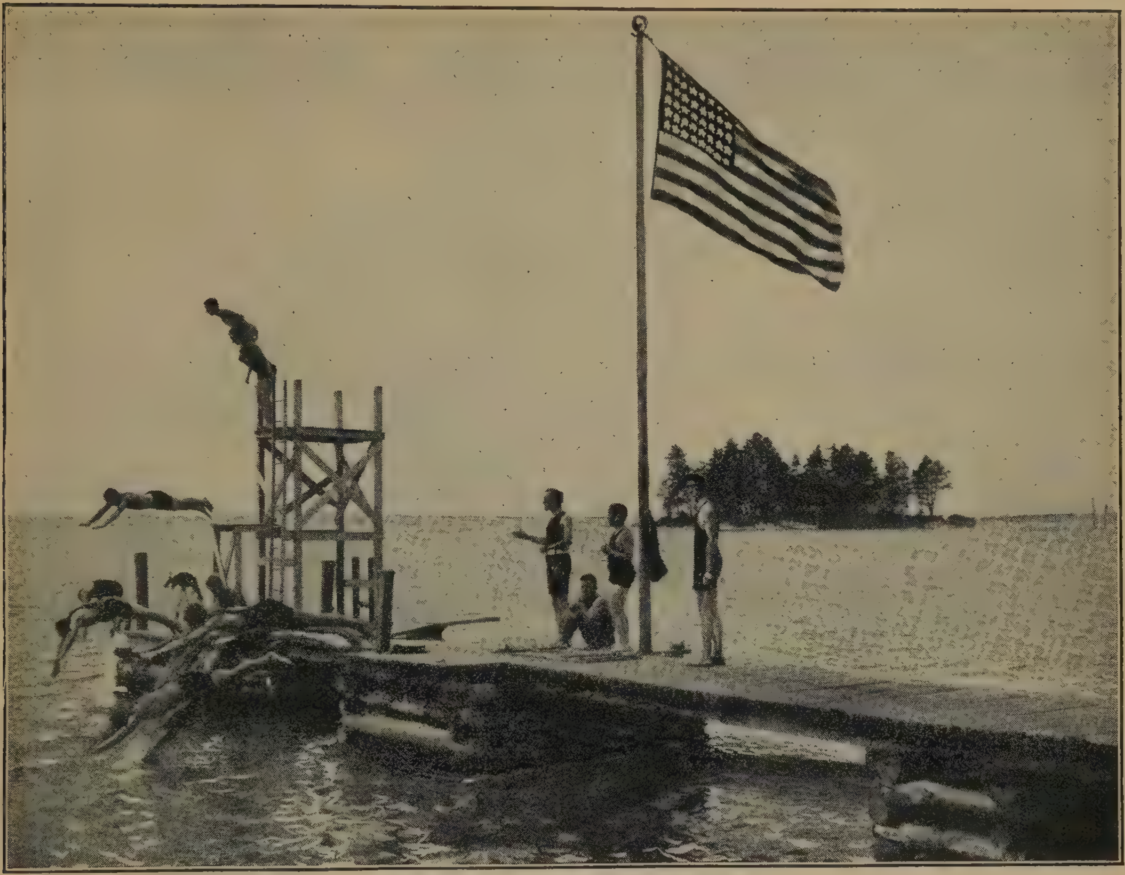


Tell what the Boy Scouts are doing.

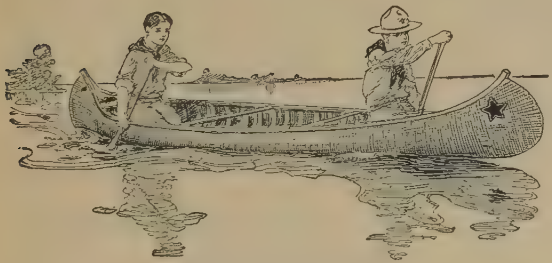
get along in camp. They cooked on an oil stove and also over an open fire. Near the tents they had a diving board for swimming. There were nice shade trees that kept the tents cool.

The camping place, or camp site, was about five miles from the Hart farm. It was on the shore of a bay. The bay was several miles wide. This was a good place for sailboats and motor boats. A river emptied into the bay. The river water was smooth which was fine for rowboats and canoes.

The camp was situated near the mouth of the river and was on a high point of land that reached out into the bay. This was a good place for a camp. The shore was sandy. This made it a good place to swim. At some other places the shore of the bay was low and muddy. In such places shallow



' What can you tell about this picture?



The Scouts' canoe.

water stood in the tall grass that grew in the mud along the shore. These places were swampy, and many mosquitoes lived there.

There was another good thing about Roaring Camp Point. It had more breezes than places back on the river had. When the breeze blew, it drove the mosquitoes away. At night, when there was no breeze, the boys had to cover their heads with mosquito netting.

The swimming was fine. The summer before, at Browns' pond, Jack had thought that he was a pretty good swimmer, but the Roaring Camp boys could dive farther and swim farther than he could. Some of them could swim faster. They were regular ducks. Their scoutmaster was a very good swimmer and a very good teacher. The boys went swimming every forenoon and every afternoon, and they always took a dive or two the minute they got out of bed.

The camp had two canoes. Canoes have round bottoms and they upset very easily. The boat on Browns' pond had a flat bottom. Jack did not know that canoes upset almost as easily as an egg rolls over. He stepped into a canoe almost as soon as he got to camp. Flip! splash! The canoe was upset and Jack was in the water.

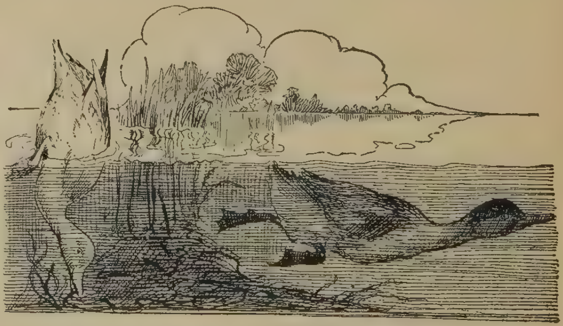
Then Mr. Tyler, the scoutmaster, told him where to sit, how to sit, and what to do in a canoe. For several days he was not allowed to go alone in a canoe.

Jack studied the rules and practiced canoeing harder than any lesson he had ever had at school. At the end of five days Mr. Tyler gave him a test. He had to be able to swim a hundred yards and paddle a canoe well before he was allowed to paddle alone near the camp. Jack passed the test, but he was not allowed to go across Deeptank River alone. At the mouth, where the river flowed into the bay, it was nearly half a mile wide. A canoeist needed to have a good deal of skill in order to cross the Deeptank River safely.

Every morning somebody went across to the farmhouse to get milk and vegetables. One morning, when Jack was sitting in the front of the canoe, he saw two green ducks swimming on the water. He had never seen ducks that color before. He splashed the water with his paddle to make a noise. Down went the ducks' heads, up went their tails. Then they sank out of sight. Jack watched for them to come up but he could not see them. He looked all around, but still he did not see them. He did not know how far a wild duck can swim under water. The ducks had swum a hundred yards under water, so that they might quietly stick their heads up in some tall grass along the shore where no one could see them. Wild ducks have to be very smart and very quick or hunters will shoot them. Many hunters come every year to shoot ducks along the bay near Roaring Camp.

THINGS TO THINK ABOUT

1. Look at the picture on page 229 and tell all of the things that made Roaring Camp Point a good place for a camp.
2. What might have happened to Jack if he had shown that he was not a plucky boy?
3. Tell the difference between a canoe and some other kind of boat. Why were canoes better for the camp than flatboats? Perhaps you can tell a story about the time that you or some of your family went camping.
4. What makes a river deeper at its mouth than at its source?
5. Bring to class pictures of camping scenes.



Read the story and tell about this.

CRABBING AND CRAB MEAT

This story tells about another way for a farmer boy to make some spending money.

Jack went crabbing every day. He liked to catch crabs. They are not hard to catch. Crabs are very fond of meat. If they find a piece, they will hang on to it tight with their big, strong claws. The boys who went crabbing tied a piece of meat on the end of a long line and dropped it down to the bottom of the deep water.

Presently Mr. Crab would come walking along the bottom or swimming through the water. When he saw the piece of meat, he would grab it and start to carry it away. Then the boy could feel a little pull on the line and he knew that he had a crab at the other end. That is to say, he knew that he would have a crab if he could catch him.

When you feel a crab trying to carry the bait away, you pull up the line very gently. Sometimes Mr. Crab gets scared and wisely swims away. Sometimes he hangs on so that you can pull him up to the top of the water. Then, if you are very quick about it, you can stick a little dip net under him and he is yours.

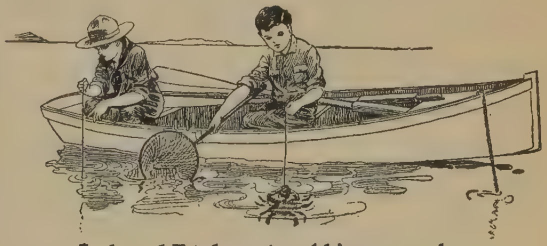
One morning Jack and Fred caught enough crabs for the whole camp to have crabs for dinner, and a bucket full more to sell to the crab man across the river.

The boys who lived in the farmhouse across the river caught crabs for a business whenever the crabs were plentiful at the mouth of the river. That was the way they got most of their spending money. They had a line a quarter of a mile long. It was called a trot line. It had many short strings tied to it, and on each string was a piece of meat. They fastened one end of the long line on the shore. One boy would row the boat out into the river and the other would sit in the back of the boat and drop the baited trot line into the water as they went along. As soon as they put all of the line into the water, they would go back to the shore and row out again. One boy rowed and the other lifted up the line and scooped in the crabs with a net.

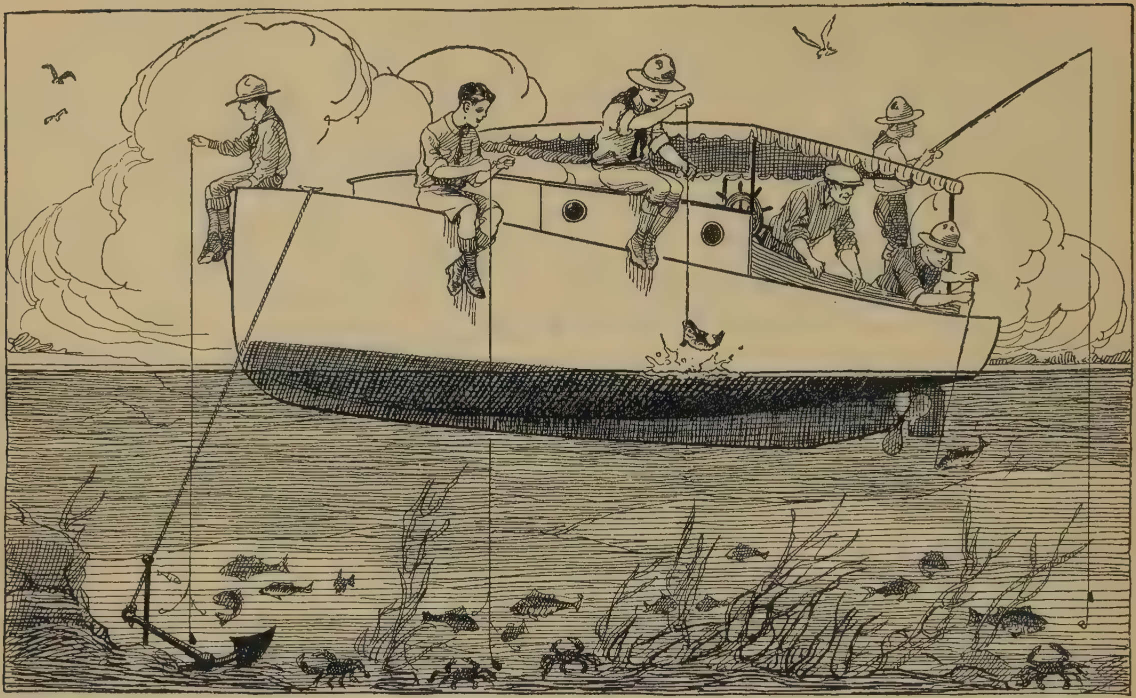
When they were done, they would row to the wharf across the river and sell the crabs to the crab-meat man. Many people in that neighborhood sold crabs to the crab-meat man. He sold crab meat to hotels and restaurants in the cities.

THINGS TO THINK ABOUT

1. In how many ways do the boys in this book make their spending money?
2. Which is the surer business, selling milk, raising chickens, or catching crabs?
3. What things that grow wild did Jack gather at the farm? At the camp?



Jack and Fred went crabbing every day.



Mr. Tyler and five of the boys go fishing. Find the anchor, a crab, a fishing line, the hooks on the fishing line, the sinker. Point to the propeller. The propeller drives the boat through the water.

THE TIDE, THE ISLAND, AND THE FISHING

When you have read this story, you may tell about either one of two things. What are they?

Every day the water in the bay and the river rose about two feet. The rising and falling of the water is called the tide. The tide rises in the ocean every day. From the ocean it runs into the bay, and from the bay it runs into the river. Every day the water ran up the Deeptank River past Roaring Camp and past Oysterburg, and the water got deeper and deeper all the time. When the water was deepest, it was called high tide. Then the tide turned and ran down the river.

At high tide a little bit of land at Oak Point had water all around it. When the tide turned, the water began to run down toward the bay. As the tide kept on running down, there was less and less water in the river and after a while it got to be low tide. Then there was no strip of water between Oak Point and the farmhouse. Oak Point was on an island at high tide and on a peninsula at low tide. *Peninsula* is a word meaning almost an island.

When the tide was coming up the bay, fish came up from the sea. That was the best time to catch fish.

"Who wants to go fishing?" asked Mr. Tyler the third day of the camp.

"I," shouted everyone.

"There is room for five of you in my motor boat, and you can decide who shall go this time. The others will have a chance later."

"Do you think we shall catch anything?" asked Jack.

"Well, you never can tell, but the wind is about right for fish to bite, so let us try it."

It did not take long for the boys to get into the boat. When the engine started popping, as motor boats do, the boat fairly flew through the water. It went so fast that Jack and Fred had to hold their hats on their heads.

In a little while the boat was out in the bay in the deep channel where the big ships pass. Mr. Tyler stopped the boat and dropped an anchor overboard. The anchor was a big, iron hook that caught in the bottom and held the boat fast. If it had not been for the anchor the boat would have floated away with the tide.

There was a fishing line for each boy. Some of the lines had two hooks. Some had only one. Each line, however, had a piece of lead tied near the end. The piece of lead was heavy enough to cause the line to sink, and was called a *sinker*.

Everyone put a piece of crab meat on his hook for bait and threw the bait and sinker overboard. They held the other end of the lines in their hands. Jack felt a little jerk at his line and he pulled it up to look at it. The hook was bare. That little jerk meant that some fish had eaten the bait. One of the boys pulled up a fish and then another fish. Jack lost his bait again. Fred caught a fish. Then Fred got two fish on his line at once. When sea fish do bite, they bite in a hurry.

Mr. Tyler told Jack just when to jerk his line, and it wasn't a minute until he had a fish. It was white and shiny. It was as long as from his elbow to the end of his fingers. He surely wished that he could show that fish to Joe and Mary.

Everyone in the boat caught fish for an hour. Jack had nine. Another boy had twenty-three. Altogether there were sixty-seven fish. Then the fish stopped biting. That lot of fish had gone on up the bay. Everyone fished for another hour and all together they caught only three more fish. Jack caught one of these. It was dark brown in color. It had a very big mouth and its head was nearly as large as its body. Jack started to take it off the line.

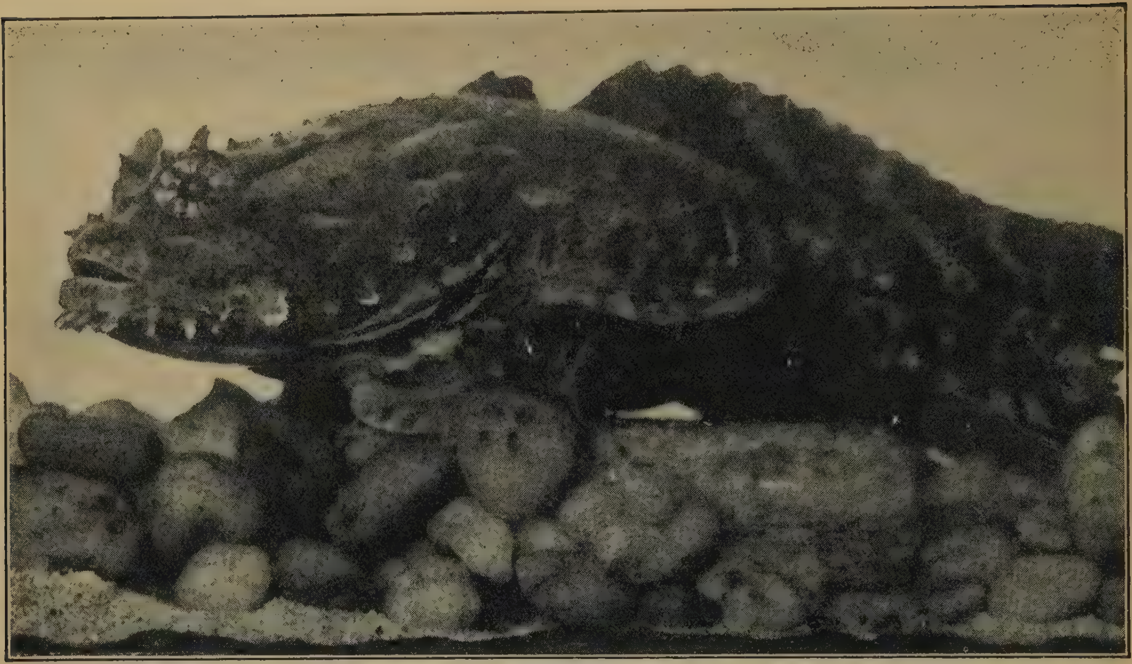
"Don't touch it!" cried Mr. Tyler quickly. "It's a toadfish. It will break your fingers off if it gets them in its mouth."

The toadfish has powerful jaws.

"Guess what he has been eating," said Mr. Tyler. "Toadfish can eat almost anything." The boys could not guess, so Mr. Tyler took a big knife and killed the toadfish and opened its stomach.

"What's all this?" asked Fred.

"Mussels," said Mr. Tyler. "They are little animals that live in hard



A toadfish.

stony shells. Mr. Toadfish just scoops up mussels in his big mouth, cracks up their shells in his strong jaws, and swallows them, shells and all. He rather likes to have a stomach full of shells. He does not object to bones either. If you put your finger into his mouth, he will crack it just as he cracks mussel shells."

The fishing party got back to camp with five times as many fish as the camp could use. Two of the scouts took some of the fish over to the village and sold them to the grocer. That helped to pay the expenses of the camp.

THINGS TO THINK ABOUT AND TO DO

1. Let someone in the class draw on the blackboard some of the things mentioned in this story.

2. After you have looked carefully at the map on page 228, you may draw a map. Put on it a bay, three islands, two rivers, and two peninsulas? A point of land that sticks out into the water is called a *cape*. Oak Point is a cape. Make two capes on your map.

3. How many kinds of fish can you name?

4. How many kinds have you seen?

5. How many kinds are sold in your grocery store? Ask the grocer where the fish which he sells come from.

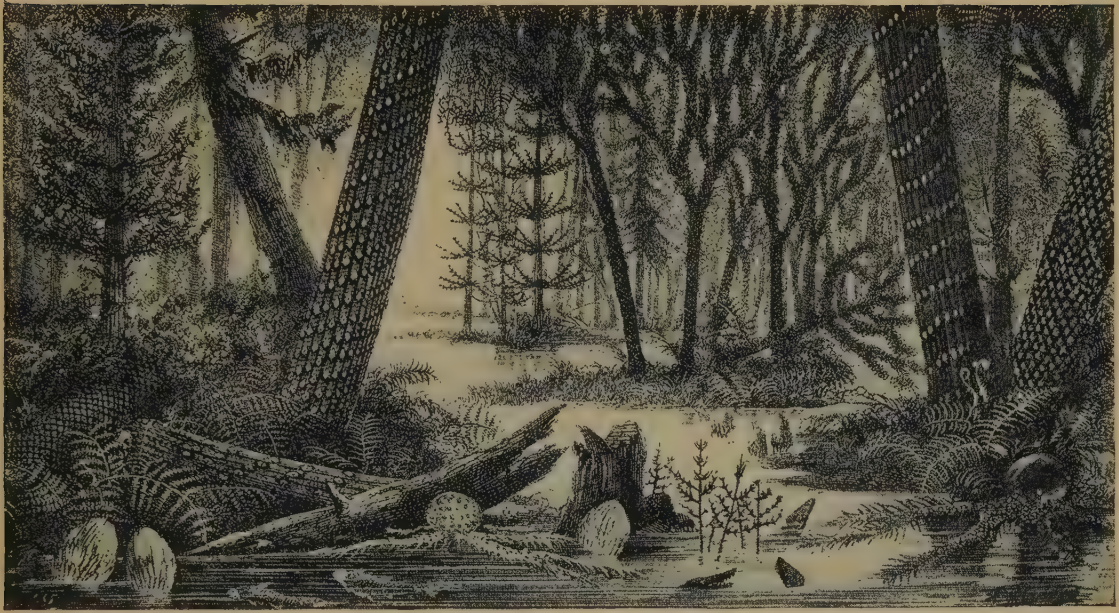
6. Tell about ways in which we keep fish until we are ready to eat them?

7. The following words are found in the chapter you have just been reading: tide, peninsula, anchor, sinker, toadfish, mussels, island, bait, propeller. Write a sentence about each of these words. Show by your sentences that you know the meaning of each word and how it should be used.

8. Pretend you were one of the boys in the motor boat pictured on page 232. Write a story about the fishing trip.

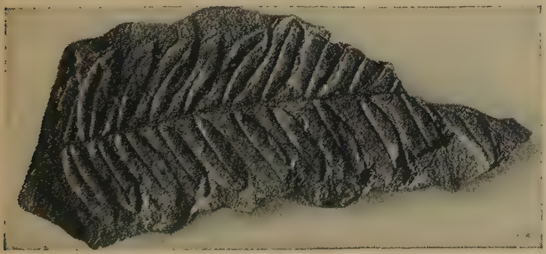
9. Turn to the index and find the word *boats*. Look at each picture of a boat referred to by the index. Then complete the following chart:

Kind of boat	Page	What use is it to people?



Philadelphia Commercial Museums.

The coal which we are now using was made from plants like those in this picture. The plants fell down into the water and were covered with mud. The mud hardened into stone. The plants changed into coal.



This piece of shale rock was found in a coal mine. It has on it the print of a fern leaf.

THE BOYS VISIT A COAL MINE

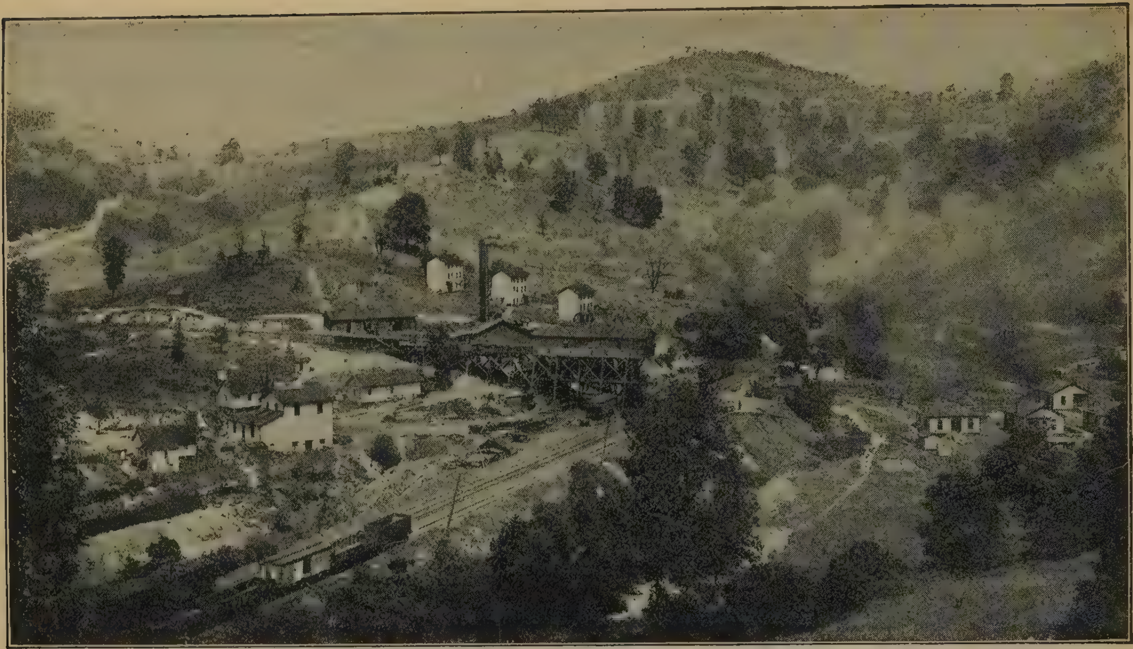
A few days after the boys went home from camp, Jack's parents surprised him. They came to the Hart farm in their automobile. The Reeds were taking a vacation trip and they wanted to take Jack and the Hart boys with them.

Since most of the summer work of the farm was done, Mr. and Mrs. Hart could spare the boys. The next morning Mr. and Mrs. Reed and the three boys set out to see the coal country. It was a jolly party and everyone was happy.

For a time the car rolled along on level roads. There were no hills. Only a level plain stretched before them. After they had been riding for some time, the car began to go up hill and then down hill. They had now reached the hilly country. Suddenly Jack pointed to something large and blue in the distance.

"That big blue thing is a mountain," said Mr. Reed. "Watch the color change as we come near it." When they were close, Jack saw a very high hill covered with trees. From a distance, the hill had seemed to be blue. Near by the trees on the hill were as green as any other woods.

For many hours the automobile went on and on. Always mountains



Mine buildings, miners' homes, and a railroad in the hilly coal country. Under these hills are layers of coal. Point to the building with a smokestack; to the coal car under the building. After the mine cars are loaded with coal, they are raised to the top of this building and the coal is dumped into the freight cars waiting below.

were in sight. In some places there would be a little level land near the road. In such places were farms and villages. In other places there were only mountain slopes on each side of the road, with no room for farms.

Late in the afternoon, the party reached the coal country. Mr. Reed stopped at the top of a high hill. Everyone got out to enjoy the beautiful view. While they were looking away across the hilltops of the coal country, a freight train rumbled along through a valley below. Most of the cars were loaded with coal.

"My! what a long train," said Jack.

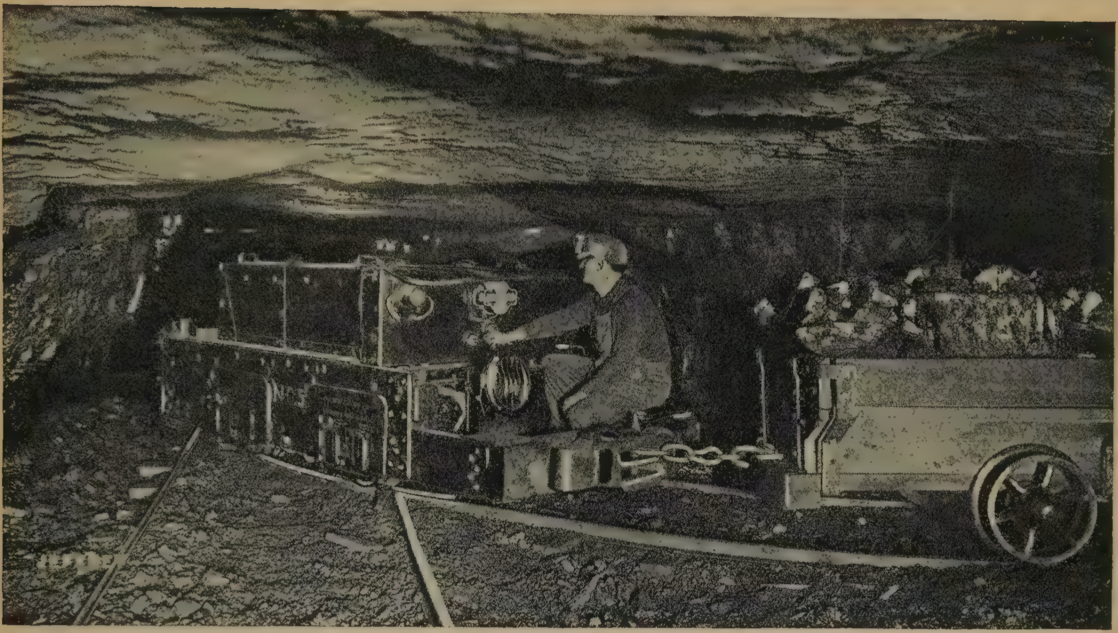
"Ninety-four; ninety-six; ninety-eight; one hundred; one hundred and two; one hundred and four," said Bill Hart, as he counted the cars two at a time as they went by.

"One hundred and four cars and the caboose! What a train!"

"Sometimes the coal trains have more cars than that," said Mr. Reed. "It is downhill from the mountains to the sea, and one engine can pull a great many cars downhill."

In a few minutes another train of coal cars went by. It was hard for the boys to believe that trains of cars kept going out of that coal country night and day, night and day, night and day, winter and summer.

"The cities and the towns all need coal," said Mr. Reed. "Nearly all the villages use it, too. It runs subways, street cars, and elevated railroads. It drives the engines in factories. It makes electric light.



An electric engine pulling a car loaded with coal in a coal mine. Why is the engine so low?

It heats houses. It runs elevators and the boats and ships in the harbors. A big city without coal would be about as helpless as an automobile party without gasoline in a lonely place on a road."

"Look, there goes another train load of coal," said Jack. "I hate to see so much coal leaving the mine. It seems terrible to use it all."

"There are layers of coal down under these rocks," replied Mr. Reed. "Under all of this land there is coal, and on as far as you can see from this point and much farther besides. It is very lucky for us that our country has a great deal of coal. Certain other countries also have coal. Some time you will learn about the coal of these countries," said Mr. Reed.

That night the party slept at a plain little inn. In the morning they went through a mine to see the miners at work. From the outside the coal mine looked like a hole or tunnel going right into the side of a hill. A little railroad was in the tunnel. On the narrow track stood a funny little train. The cars were smaller than small automobiles. They were drawn by an electric engine whose top reached only to Bill Hart's forehead.

The man in charge of the train said that the party might ride in the tiny cars. The screechy little whistle blew and the train went for quite a distance through the dark tunnel. Everyone wore a rain coat because it had rained a few days before and water was dropping into the mine. Soon they saw many little lights moving in the distance. When the coal train came to where the lights were, the

In a coal mine. See the layers of coal. They are thicker than the men are tall. In the first picture is a machine. It drills holes into the coal. Dynamite is put into the holes. Bang! Bang! The dynamite explodes and breaks the coal into pieces. In the second picture, one of the miners is shoveling the coal into the car. Point to the mine props. Why are they there?

boys saw that the lights had moved because they were fastened to the caps of the miners. As the miners went about their work, the lights were always in front of the workers.

Some of the men were blasting the coal with dynamite. Some were digging it out with picks. Others were shoveling it into little coal cars. A gang of men was digging the tunnel farther back into the coal layer. As they dug, they put up props to hold the roof so that it could not fall in when the coal was taken out. Every year many miners are hurt and some are killed in the mines.

"Toot, toot!" went the whistle as the engineer moved his engine and fastened it in front of the ten cars loaded with coal.

Again "toot, toot!" as the little train moved through the tunnel.

It seemed good to get out into the sunshine once more.

"Mother, were you afraid that a rock might cave in on us?" asked Jack, while they were driving home.

"I like much better to be outside," said Mrs. Reed, "but I am glad we came. I have always wanted to see a coal mine.

"Who can think of the most things coal helps us to make or do? The winner shall choose the dessert when we stop for lunch."

THINGS TO THINK ABOUT AND TO DO

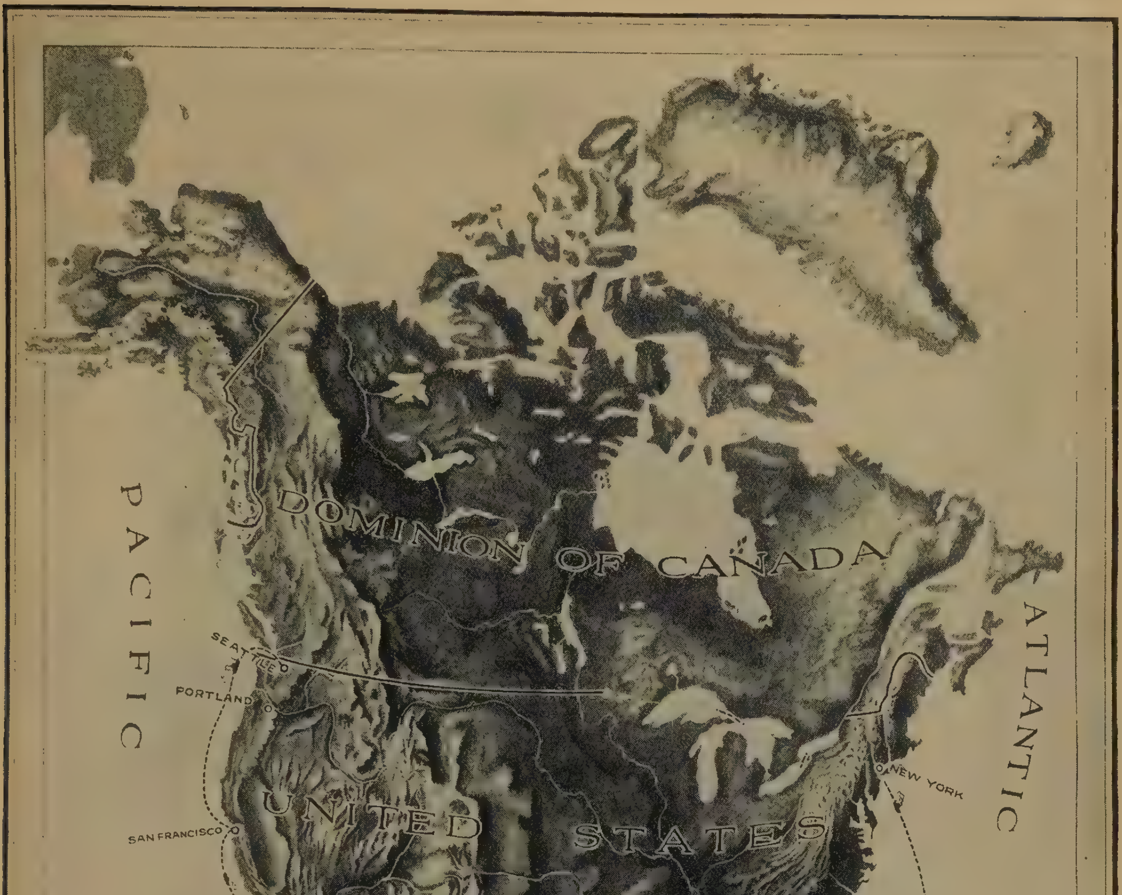
1. Do the thing that Mrs. Reed told the boys to do.
2. See how many pictures in this book show things that have something to do with coal.
3. Perhaps your teacher will show you on a map some States where coal is mined.

* * * * * * * * * * * *

And now we must leave Jack and Joe and Mary and Ned and all the others. As we have followed them, we have come to know how people live in a country neighborhood. We have also come to know a village, a country town, and a great city. We have learned about living on two kinds of farms.

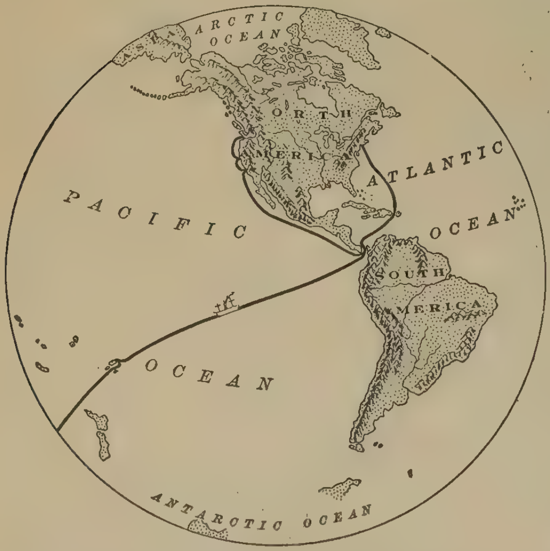
Now we can say that we know something about all of our country, for everyone in it lives in a village or in a town or in a city or in the country.

The rest of this book tells a little about some other parts of the world.


DOMINION OF CANADA
PACIFIC OCEAN
ATLANTIC OCEAN
SEATTLE
PORTLAND
UNITED STATES
NEW YORK
SAN FRANCISCO
LOS ANGELES
MEXICO
NEW ORLEANS
©

At the Brown farm there were fields. These were land. There was a pond and a stream. These were water. We also found land and water at the truck farm and at New York. This whole world is made up of land and water. The largest pieces of land, or bodies of land, are called continents. The one we live on is called North America. This page shows a map of North America. Each continent has several countries. Find three countries in North America. The largest bodies of water are called oceans. Name and point out two oceans near North America.

These people, called Eskimos, are building a house. Tell about it. They live in the upper or northern part of North America. The *cache* on poles is to keep meat away from the dogs.



This map shows North America and South America. Look at page 239. North America is much larger there than here. That map is made on a larger *scale* than this one. Point on this map to the Pacific Ocean. Point to the Atlantic Ocean; to the Antarctic Ocean; to the Arctic Ocean; to a little piece of Asia.

THE BIG ROUND WORLD

In this book we have been reading about how boys and girls live. They live in the country, in a village, in a town, or in a city. All of the people, which we have read about in this book, live in our country, the United States.

There are other countries in North America. There are boys and girls in every one of these countries. They also live on farms, or in villages, towns, or cities.

Besides North America there are five other continents. One of these continents is named South America. Point on the map to South America. The narrow piece of land which connects North and South America is called an isthmus—the Isthmus of Panama.

A house in Banana Land, where there is never any frost. People here need a house only to keep off the rain and the sun. Where would you rather live, at home, in Eskimo Land, or in Banana Land? Give a reason for your choice.

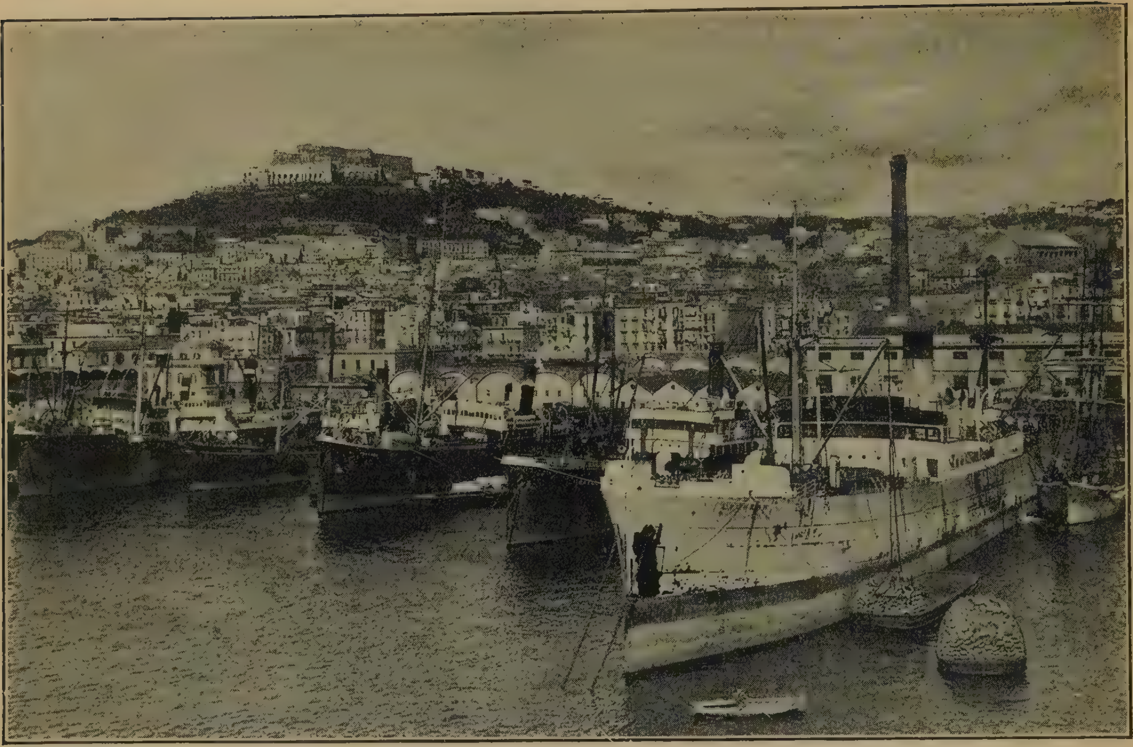
Look at the map on page 240. Find lines that show where the ships go from one side of North America to the other side. It is a wonderful thing to build a ship large enough and strong enough to sail on the ocean. Sometimes ships are out of sight of land for days and days at a time.

Before a ship could sail between North America and South America, men had to dig a deep, long ditch into which water could run. Such a ditch, when deep enough to float boats and ships, is called a canal. Large ships sail through the canal across the Isthmus of Panama.

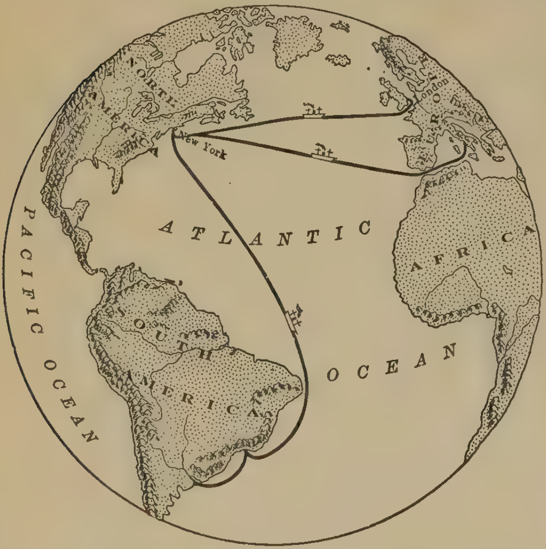
The pictures on pages 240 and 241 show us that boys and girls live very differently in different parts of the world. We should see many houses like the one at the top of this page if we visited Banana Land.

The map on page 242 shows a small part of Europe, another continent. It also shows some of the tracks of ships going from our country to Europe. Many ships go back and forth between these two continents.

The ancestors of most of the people in North America came from Europe in ships. The people of Europe have many ships. They buy many things from people in other continents. They sell many things to people in other continents.



This is Naples, a city in Europe. It is the chief seaport of a country named Italy. What things in the picture tell that Naples is a seaport? What is being done in the lower right corner of the picture? Find in this book a picture of New York where the same kind of thing is being done.



This map gives us another view of one of the oceans we saw on the map on page 240. How many oceans and continents does it show? Name each ocean and each continent. Point to New York. Trace the steamship route from New York to London; from New York to South America.

THINGS TO THINK ABOUT

1. Eskimo Land is at the northern end of North America. The northern end is shown at the top of the map. Banana Land is at the southern or lower end of North America as it is shown on the map. Look at the pictures on pages 240 and 241 and tell all that they show you about living in those countries.

2. Name all the continents and oceans you have read about. If you have a wall map, point to them on it.

3. Examine the picture on page 242 and tell what it shows about trade.

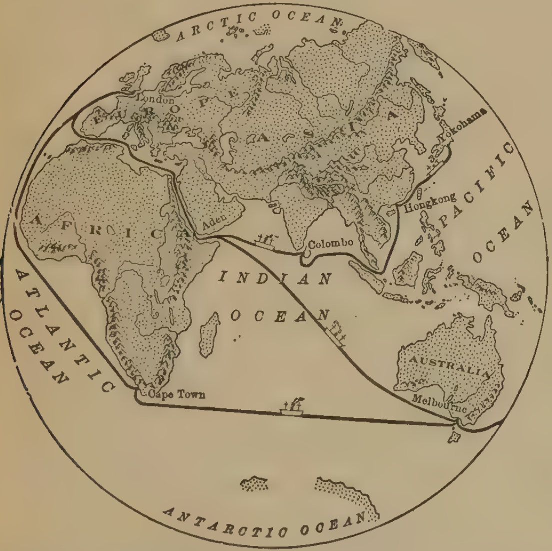
4. What does the map on page 242 tell you about trade?

5. From what continent did the ancestors of most of the people near your school come?

6. Look at the pictures on pages 241 and 242 and tell how there might be some trade between these two places.

7. Pretend you lived in Eskimo Land. Tell about building a snow house.

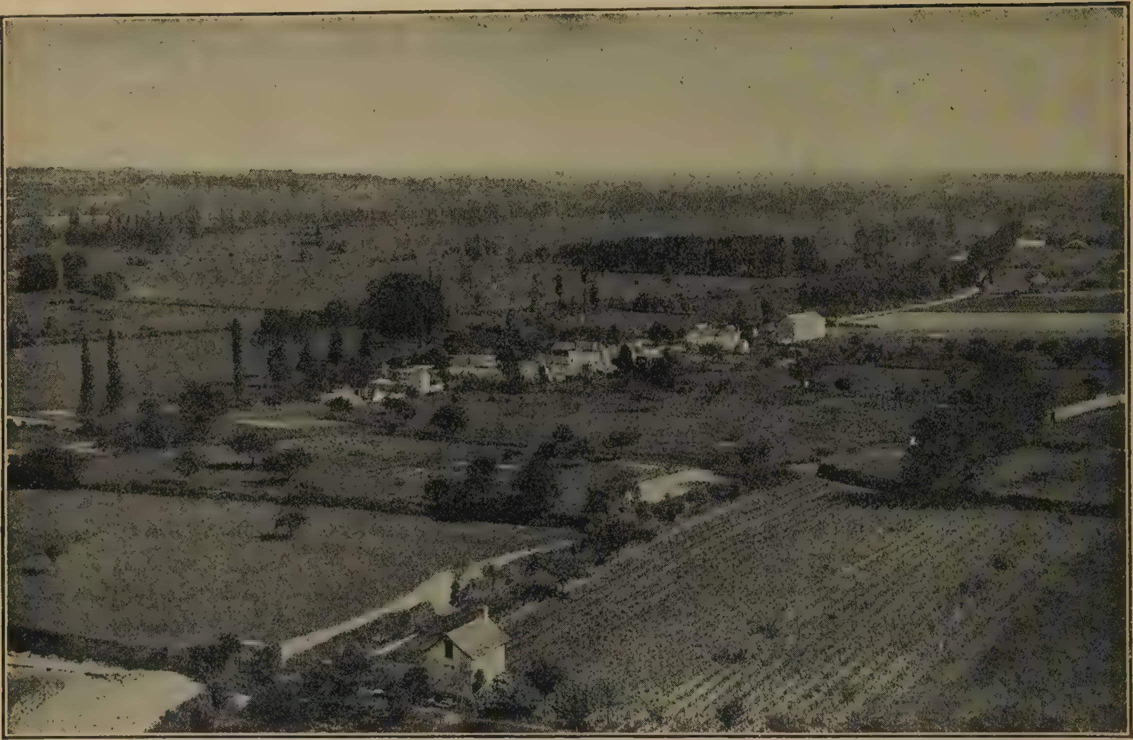
A mountain home in Switzerland—a country in Europe. This country has many high mountains. What do you think is the business of the people who live in this mountain home? Do you think the people who live in a country like Switzerland love it? Why?


ARCTIC OCEAN
London
EUROPE
ASIA
Yokohama
PACIFIC OCEAN
Hongkong
AFRICA
Aden
Colombo
INDIAN OCEAN
ATLANTIC OCEAN
AUSTRALIA
Cape Town
Melbourne
ANTARCTIC OCEAN

This map shows us Europe. We have not seen all of this continent before. It also shows Europe's neighbors, some of which we have not seen before in this book. Name each one of Europe's neighbors. Tell which one is the largest. Tell which one is the smallest.

The maps on page 240 and page 243 show us the six continents on which people live. There is one more continent away at the southern part of the world. This continent is called the Antarctic Continent. It is so cold there that the Antarctic Continent is nearly all covered with ice throughout the year. In some places the ice is a hundred times as high as a two-story house. No one lives there. Once in a while, however, some men from Europe or America fit out a ship and go there to see what it is like. These men are called explorers. They must take with them almost everything that they eat or use.

Name the six continents on which



Where do you think the man was when he took this picture? This is a village in France, one of the countries of Europe. The people who live in the village are farmers. They have their farms on the open land around the village. Europe has many, many, many villages like this one.

people live. These are the continents shown on pages 240 and 243. You see that they are in two groups.

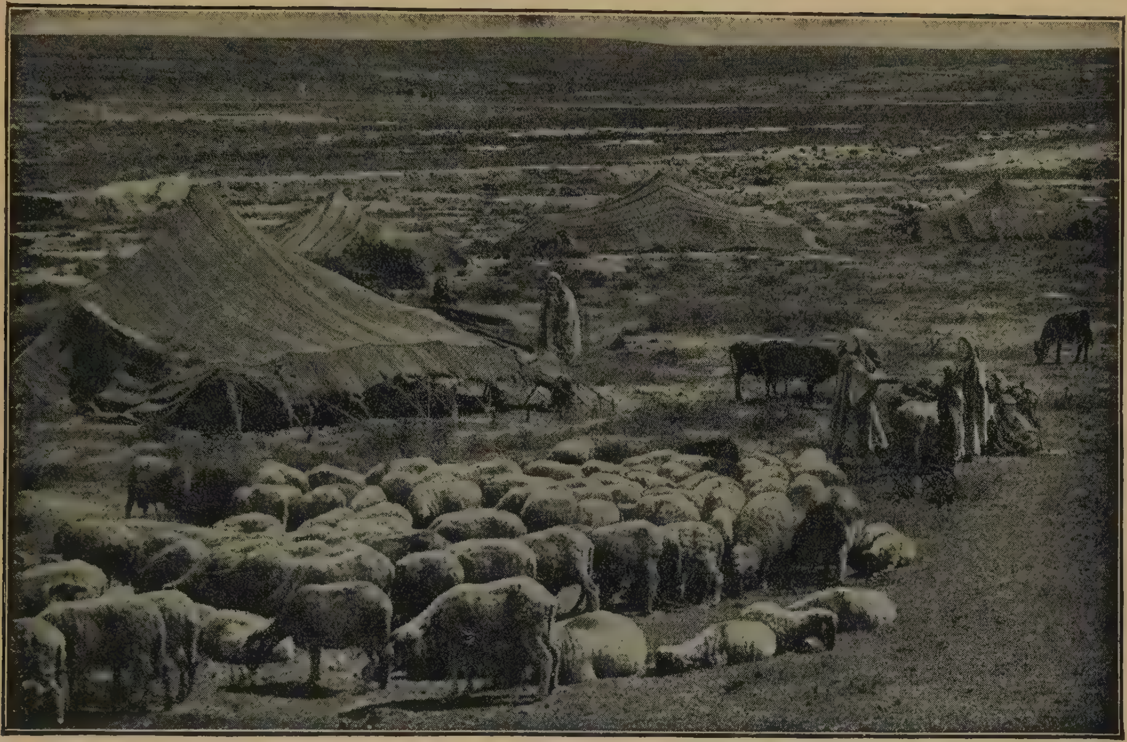
North and South America are sometimes called the *Western Hemisphere.*

Europe, Asia, and Africa are sometimes called the *Eastern Hemisphere.*

Look at the maps of the two hemispheres and see if there is any way in which Africa is like South America. The isthmus that connects Africa and Asia is named the Isthmus of Suez. This isthmus also has a canal dug through it. That canal and some long bodies of water on each side of it allow ships to go from one ocean to another. What are the names of these oceans?

THINGS TO THINK ABOUT AND TO DO

1. If you were going to spend a year on a European farm as Jack did on his uncle's farm, would you rather spend it at the place shown on page 243 or at the place shown on page 244? Tell why you choose the one you do.
2. What material was used in building the fence on page 243? Why did they use this material instead of wood?
3. Do you think the people who live in the mountain house on page 243 have any use for a city? Give a reason for your answer.
4. Look at the maps on pages 242 and 243. See if you can show a way by which a ship might sail from the United States to some place in Asia.
5. Tell something about a farm village in France.
6. Pretend you lived in the Swiss mountain home shown on page 243. Tell something about your life among the mountains.



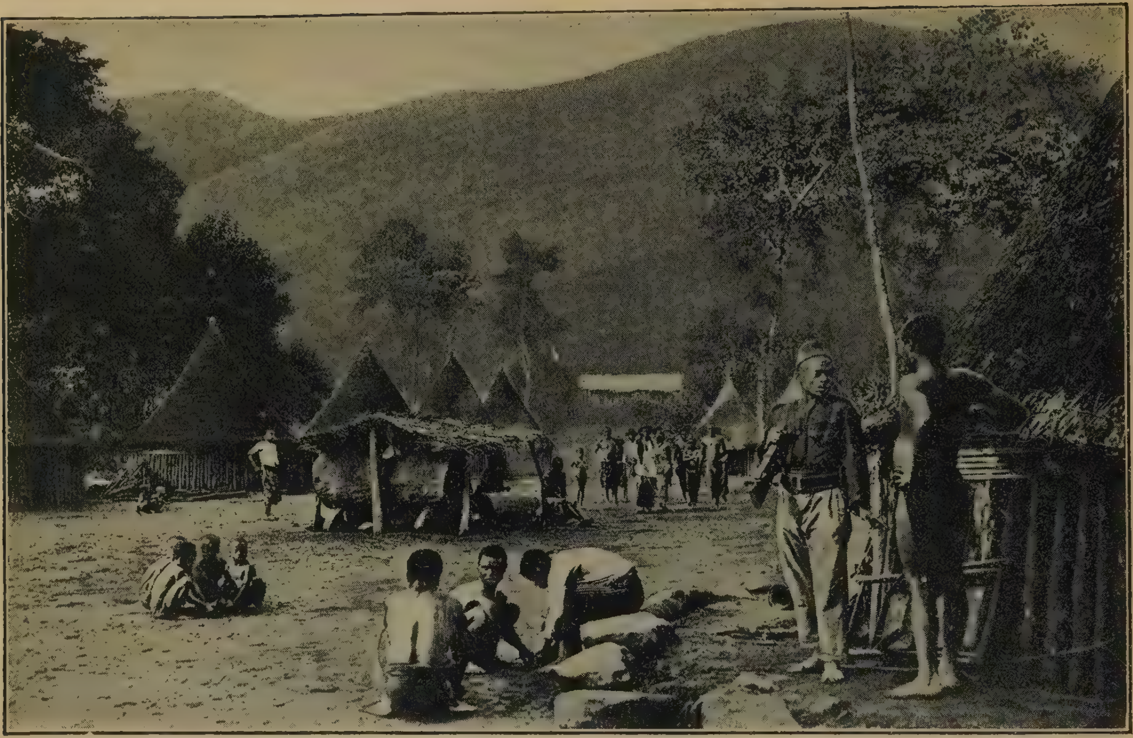
This is the kind of house that people have in the warm, dry country of North Africa. What things in this picture make you think it is easy for these people to move about from place to place?

Look at the map on page 243 and tell what continent is below or south of Europe. The pictures on pages 245 and 246 show two places in two parts of this continent. All of the continents are so large that some places are very different from other places in the same continent.

On pages 240 and 241 we have two pictures of two very different parts of our own continent. The picture of the snow house shows that the northern part of North America is very cold.

The people shown on this page live in Northern Africa. If you told them about a snow house, they would not know what you meant. Many of them never saw snow. Many of them never even heard of snow. It is warmer there than it is in those parts of our country where plants and trees are green all winter.

The people shown on this page live in the tents you see in the picture. If you should tell them that it is better to live in a house of wood or of stone or of brick, they would be sorry for you. These tent dwellers are sorry for everyone whose home is fast in one place. They have lived in tents all their lives. They were born in tents. Their fathers and mothers were born in tents. So were their grandfathers and their great-grandfathers. Their people and almost all the people whom they know have always lived in tents and



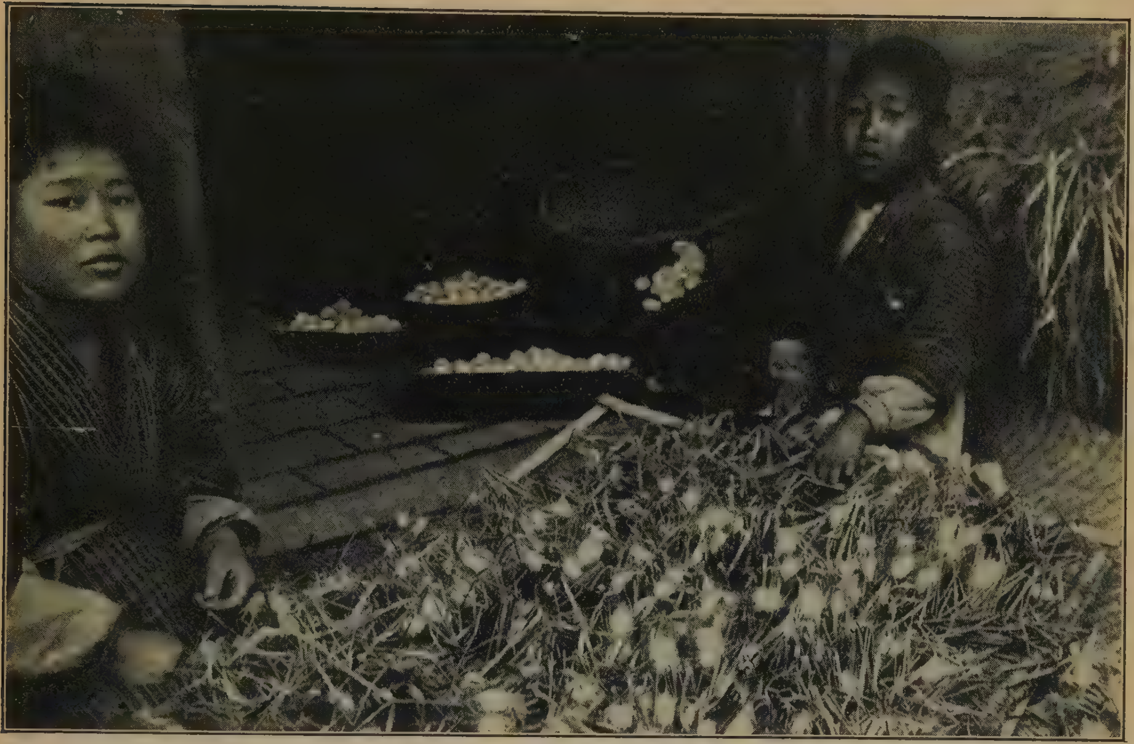
Tell all the ways in which this village differs from the one shown on page 244. Do you think these people roam about as much as the people shown on page 245? Is there anything in the picture that makes you think there is more rainfall here than at the place where the picture on page 245 was taken?

moved about from place to place. They have lived in tents for hundreds and hundreds of years. No wonder they are very sure that is the only right and proper way to live.

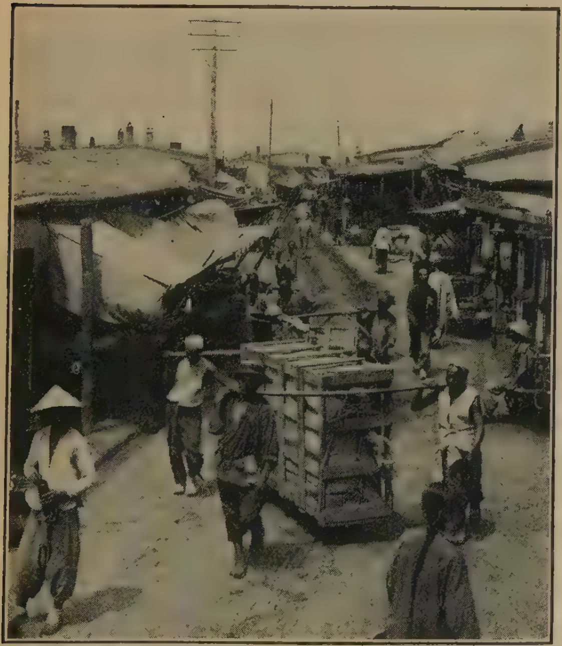
Why do they live in tents? They live in tents because they have to move often. It is easy to move a tent and hard to move a house. When they want to move, they just fold up the blankets on which they sleep and put them on a camel or on a donkey. They put the pots and pans and water jars into sacks and put these on the camels and donkeys. Then they themselves get on the camels and donkeys. "Get up, Camel," "Get up, Donkey," and away they go. They are moving. They move because their country has but little rain. They cannot grow wheat and corn and have gardens. They have only a little grass. They must keep moving to find grass for their animals. The people must move to be with the flocks.

The people shown in the picture on this page live in Central Africa, where there is much rain. They can have gardens and crops.

Look at the map on page 243. What is the name of the largest continent on that page? This continent has many countries. Two of these countries are named China and Japan. Ask your teacher to show you where they are on a wall map.



The white things in the straw are the cocoons of silk which silkworms spin around themselves. The silkworm wears this cocoon while he is turning into a butterfly. Shunzo Ito, the Japanese boy, is picking the cocoons out of the straw to make silk to send to America.



These Chinese men are too poor to have an automobile or a horse or a donkey. That is why they carry freight on their shoulders.

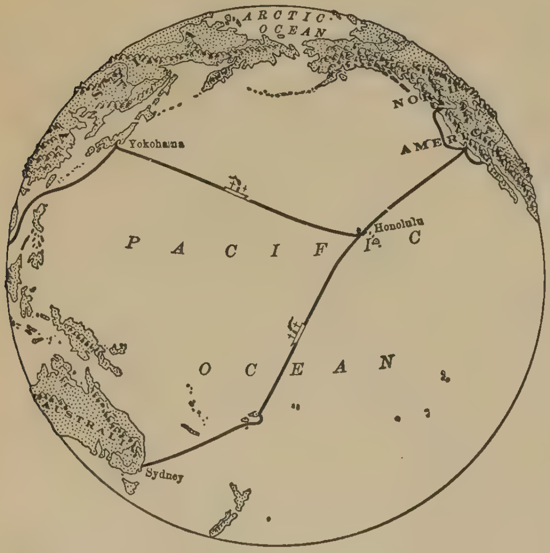
Most of the silk that we use in this country comes from Japan. The people of Japan are great workers. So are the people of China. Tell how the two pictures on this page show that the people of China and Japan are great workers.

Look again at the map on page 243. What is the name of the smallest continent on that page? This continent is known all over the world for its flocks of sheep, its wool, and its mutton.

THINGS TO DO AND THINK ABOUT

1. Let us trace the journey of a ship. Look at the map on page 240. Trace with your finger the way a ship would go from the Pacific shore of our country to the Atlantic shore.

Large parts of Australia are sheep range country, much like that in the western part of the United States where Mr. Stark (page 61) once tended sheep. There are thousands and millions of sheep walking about on these plains and eating grass. The sheep in this picture have been herded into pens. Soon they will be made into mutton. People will eat the mutton.



This map shows the largest ocean in the world. It is larger than all of the continents and all the islands in the world. What is the name of this big ocean? What continent is at the right side of this ocean? What continents are at the left side?

2. Through what canal and across what isthmus would it pass?

3. Now turn to the map on page 242. Trace the ship's track from New York to the body of water that lies between Europe and Africa.

4. Turn to the map on page 243. Show where the steamer can pass through a canal across an isthmus and get out into the Indian Ocean.

5. Now follow the steamer's route around Asia to Japan.

6. Look on page 248 and trace the steamer's track across the Pacific Ocean to the United States. A strange thing has happened. Our ship started out and has kept always to the right. It kept on going to the right, but it got back to the place from which it started.

7. Take an apple, or an orange, or a ball. Make a mark on it. From the mark trace a line in one direction until you come to the mark again.

FORMS OF LAND AND WATER

On page 8 of this book you found a picture of farm buildings and of the fields around them. Under the picture is a map of the farm. This page showed you something about the use of maps.

As you go on in school, you will use maps more and more. Every geography has many maps. When you study history also, you will want to know where the events took place. So you will find maps in your history.

On the next two pages are some more pictures, and under them are maps to show the same places. These pictures and maps are made so that you can see the different forms of land and water that you will read about. Probably there are no places just like the ones shown in these pictures, but they will help you to understand maps of real places.

Now suppose we take an airplane in the city shown in the lower left-hand corner of the picture on page 250. We will fly over the plateau and the gorge toward the glacier. If you will turn to page 252, you will find an explanation of all the words on the map. Look first at the map at the bottom of the page, then at the picture above it.

As our airplane rises, we shall have a wonderful view. The pilot will swing around in a circle so that we can see in all directions. Then we will head straight for the glacier.

Why do you think we see so many ships inside the jetty?

Where do you think good crops would grow?

What would we see in the gorge?

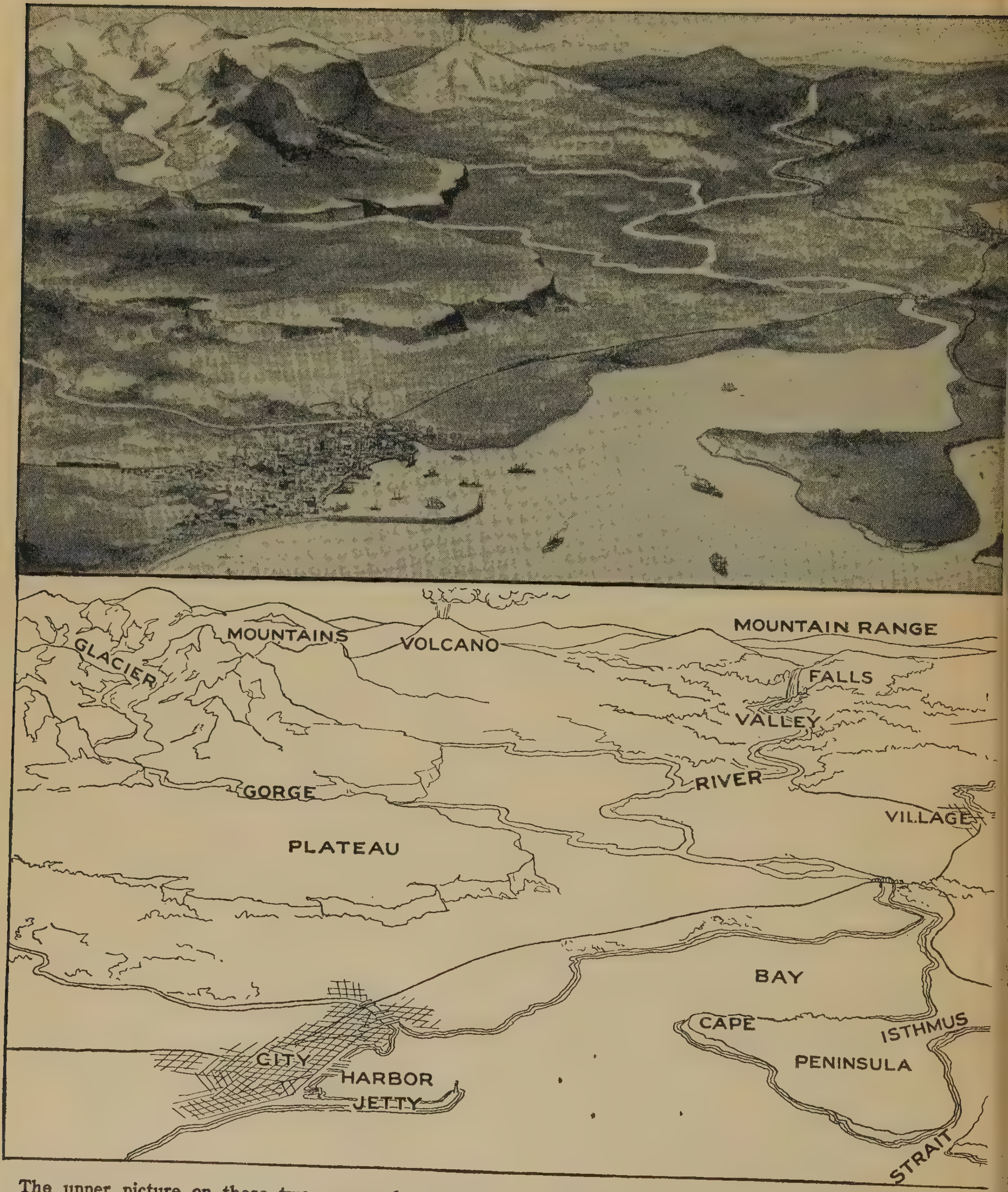
Now read what is said about a glacier on page 252, and tell how you think it will look from the airplane.

We shall turn our airplane to the right when we get to the glacier. Will it be safe to fly along the top of the picture? Give a reason for your answer.

As we come to the falls shown near the upper right corner of page 250, we again turn to the right. We can fly lower now because we are coming down from the mountains. We shall see forests along the river. As we go farther, we shall see farms with their growing crops. The road will look like a ribbon under our airplane.

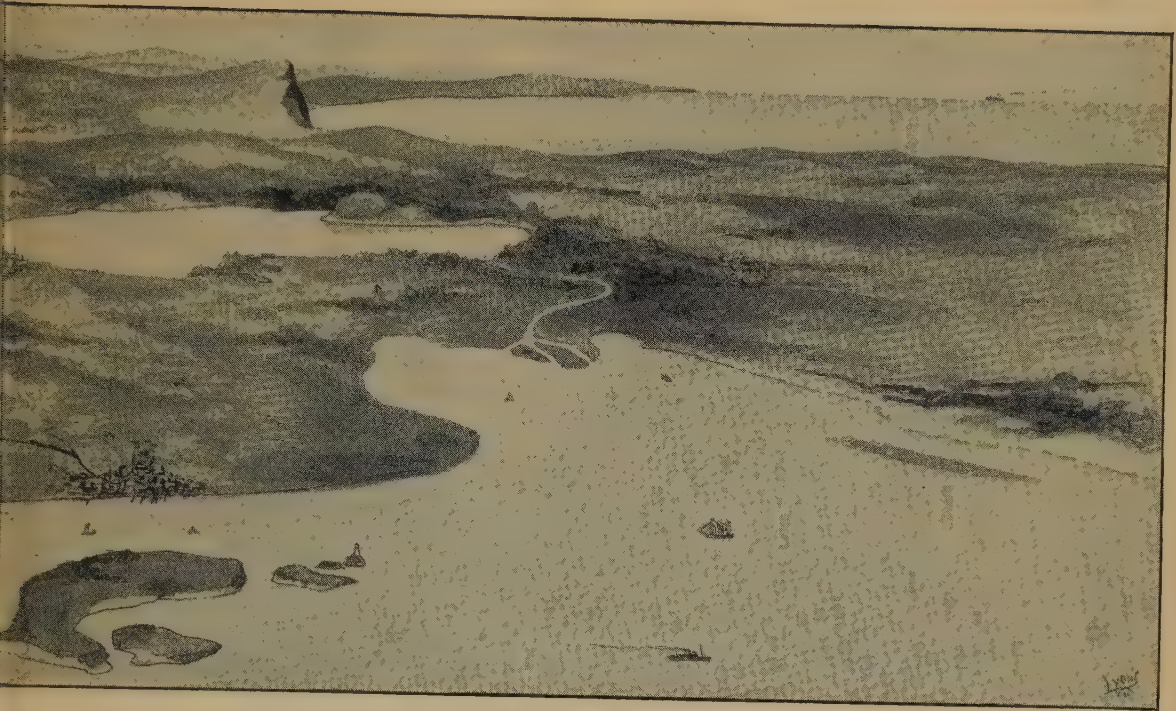
Now we are ready to study the lower part of the map more carefully. Look at the jetty on the map and in the picture. See if you can think why it was built. Look at the bay. Tell what you think a bay is. Now look on page 252 and see if you had the right idea. Do the same for the cape, the peninsula, the isthmus, the strait, and the other names you find along the shore.

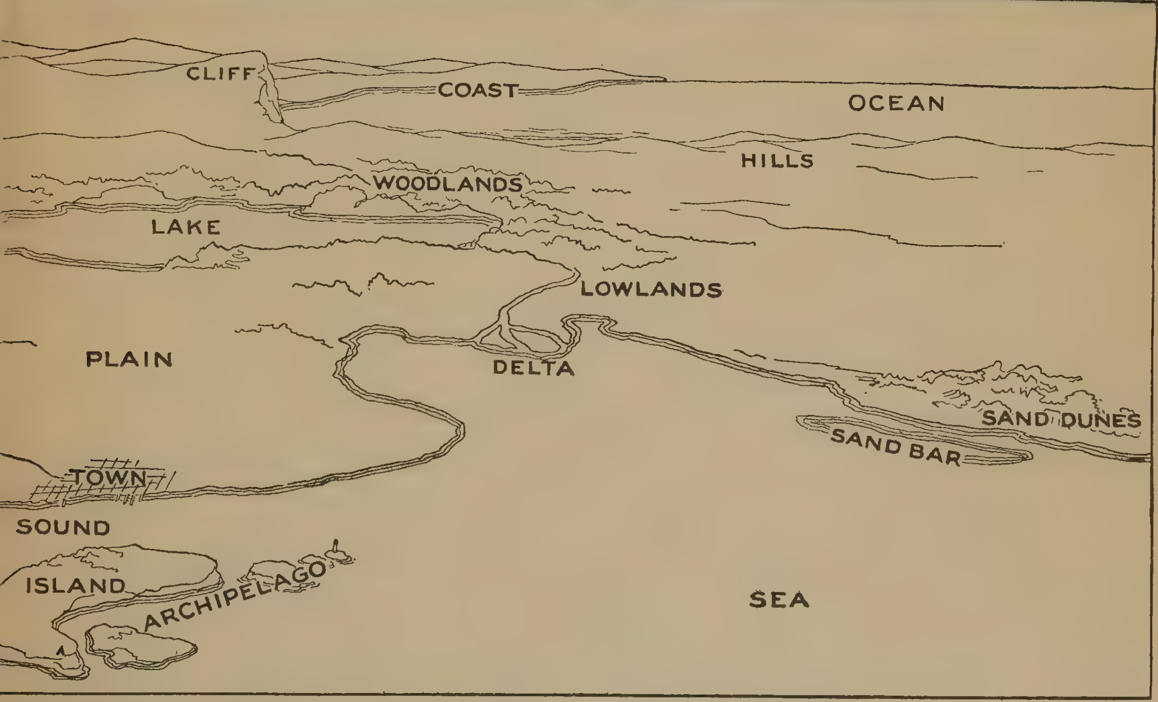
Now read the print at the bottom of pages 250 and 251. Tell about any of these forms of land or water that you have seen when you have been on trips.


MOUNTAINS
VOLCANO
MOUNTAIN RANGE
GLACIER
FALLS
VALLEY
RIVER
GORGE
VILLAGE
PLATEAU
BAY
CAPE
ISTHMUS
PENINSULA
CITY
HARBOR
JETTY
STRAIT

The upper picture on these two pages shows a part of the surface of the earth as it looks to a man who is flying high over it in an airplane. The lower picture is a plan or map such as the airman might sketch as his plane flies swiftly over the land and over the sea.

The upper picture shows many different land and water forms. Some of these forms you can see as you ride about your neighborhood or visit the mountains or the seashore. Your study of the picture and the plan or map will help you to recognize these land and water forms and to call them by name.




CLIFF
COAST
OCEAN
HILLS
WOODLANDS
LAKE
LOWLANDS
PLAIN
DELTA
SAND DUNES
SAND BAR
TOWN
SOUND
ISLAND
ARCHIPELAGO
SEA

Locate each of the following forms on the plan or ap and on the picture. Then write a sentence about ch form, telling what it is: bay, ocean, glacier, ndbar, lake, plateau, cliff, waterfall, peninsula, delta, in, river, volcano, hill, mountain, coast, sea, cape, hmus, strait, sound, island, archipelago, valley.

Besides the land and water forms, the picture shows a number of things which were built by people. Locate ten of these man-made things.

How many of the land and water forms which you have learned can you locate and name on the relief map of North America, page 239?

FINDING LAND AND WATER FORMS

Archipelago. Look at the bottom of page 251 and see how many islands you can find. Do you see that some are large and some small? Such a group is called an *archipelago.* There may be just a few or a large number of these islands.

Bay. Can you tell why a bay is called an arm of the sea? You will find a picture of a bay on page 250. Think of the sea as the body of a great giant with the bay as his arm stretched out reaching into this land. Small bodies of water opening into the seas or large lakes are often called *bays.* They are of many shapes.

Cape. If you should look in your dictionary, you would find that there is more than one kind of cape. On page 250 you will see a point of land extending out into the water. It looks something like the long nose of an animal. This formation of land is called a *cape.* Very often a lighthouse is built right on the point farthest out in the water. Can you tell why?

City. Look first at the top of page 250 and see if you can find a city. Does it look like a large or small place? Are there many buildings or few? Can you find the same city at the bottom of the page? We see that a city is a large and important town. In the United States and Canada the people living in a city make laws to govern themselves.

Cliff. You all know what a steep hill looks like. Now imagine that as you tried to climb it, you found that the side of the hill went almost straight up into the air, and that the soil had all fallen away, leaving only rock. The hill then would be called a *cliff.* See if you can find one on page 251.

Coast. When you first look at this word *coast,* what do you think of? A long hill covered with snow and a fine sled. Of course you do if you live in snow land. But the word has another meaning. Look at the maps on pages 250 and 251 and notice the land just where it touches the water. This land which forms a boundary or edge for the water is called the *coast.*

Delta. What is the fourth letter of the alphabet? In the Greek language this letter is called delta, and when written looks like this: △. Because the sand or soil which collects at the mouth of a river looks like this letter it has been called by its name — *delta.*

Falls. As a body of water runs along on its way to the sea, it sometimes comes to a steep cliff. It tumbles over this to the level ground below. We call this a *falls* or *cascade.* Look among the mountains on the map on page 250 and see if you can find the falls.

Glacier. Away up in the mountains where it is very cold, a mass of ice and snow forms and moves slowly along very much as a river moves along in its bed. As this ice and snow moves into warmer air, it melts a little. If it finally reaches the sea, it breaks off into icebergs which float off in the water.

Gorge. Sometimes a stream of water will cut its way through rocks, thus forming a narrow passage with steep sides. We call this passage or narrow valley a *gorge*. See if you can find a gorge on the map at the top of page 250.

Harbor. Find the city on your map on page 250. Now notice the ships that are grouped in the water beyond it. They are there because it is a safe place for them to anchor. Such a safe, protected place is called a *harbor*.

Hills. As you look at the maps on pages 250 and 251 you see that the land is not all flat. It rises above the level parts in some places only slightly and in others to a great height. These lower elevations are called *hills*.

Island. On the map and on the picture on page 251 you will find both large and small tracts of land entirely surrounded by water. These tracts are called *islands*. There are many islands along the coast and also far out in the great oceans.

Isthmus. Look carefully at the lower right-hand corner of the picture on page 250. Do you see a piece of land almost separated from the mainland? That narrow strip of land which joins the two is called an *isthmus*.

Jetty. Find the city on the picture on page 250. Now find the harbor. Do you see the narrow strip that stretches out from the land and partly around the harbor? This is a *jetty*. It is built of stone to protect the harbor and make it safe for the ships.

Lake. Just below the cliff in the picture on page 250 you can see a large body of water surrounded by land; this is called a *lake*. Perhaps some of you have spent a summer on the shore of a lake and have enjoyed it as much as you did the seashore—or perhaps even more.

Lowlands. Just above and to the right of the delta in the picture on page 251 you will see a low, flat stretch of land. We call this the *lowlands*. This name is easy to remember because the two words of which it is made tell you just what it is—low and land.

Mountains. At the top of page 250 are very high hills rising away up above the level land. These hills are called *mountains*. Sometimes they are of rock, and nothing can grow on them. Others are covered with soil, and trees and other plants cover them.

Mountain range. Now that you know what a mountain is, you can easily find the row or chain of mountains at the top of page 250. Such a row or chain is called a mountain *range*.

Ocean. Up at the top of page 251 you see just a small part of the great body of salt water that covers more than half of our earth. Of course, you know its name — the *ocean.* Can you find it on page 152?

Peninsula. Turn to the picture on page 250 and look at the lower right-hand corner. You will see a rather small tract of land that is almost an island. But notice that it is connected to the mainland by a narrow strip of land. Because it extends out into the water but is connected to the mainland in this way, we call it a *peninsula.*

Plain. On page 251, find the delta, then the lake. To the left of the delta and below the lake you find a wide stretch of level land. This is a *plain.*

Plateau. Near mountains we sometimes find a high but level tract of land. This is called *table-land* or *plateau.* You will find it at the left of the center of the picture on page 250.

River. Look at the picture on page 250 and find the crooked white lines that are drawn there. These represent large streams of water which flow through definite channels until they empty into other streams, lakes, or seas. We call such a stream a *river.* Look over to page 251 and find a river.

Sand bar. At the right of the picture on page 251 you see what appears to be a long, narrow island. It is really a bar or bank of sand. When the water rises, these sand bars are covered, and ships sometimes run on them and have trouble getting off again.

Sand dunes. Just above the sand bar on page 251, you see a dark section along the shore. The wind blows very hard along the coast and piles up the sand into mounds which we call *dunes.* It is just the same as the great snowdrifts that some of you see when the wind blows hard during a snowstorm.

Sea. The large body of water that you see at the bottom of the picture on page 251 is a sea. It is salt like the ocean, but smaller in size.

Sound. On page 251, at the bottom of the picture, find the islands. Now notice the long stretch of water lying between these islands and the mainland. This we call a *sound.* Find it in the map at the bottom of the same page.

Strait. Do you remember that an isthmus is a narrow strip of land connecting two larger parts? A strait is a narrow passage of water connecting two larger bodies of water. Turn to page 250 and look at the lower right-hand corner of the map. You see the word *strait.* Now find it on the picture above. Find one on page 152.

Town. Look at the map on page 250. In the lower left-hand corner you see a city. Now look at page 251 and see if you can find the word *town* on the map. Look at the pictures and find a city and then a town. You see that the town is smaller than the city — a town is a collection of houses making a distinct place, with a name. A town is larger than a village, see page 74.

Valley. In the upper right-hand corner of the picture on page 250 you see a mountain range. Below it a river is flowing through a lowland with hills on each side. This lowland through which the river flows is called a *valley*.

Village. You remember finding a city and a town on the map and pictures. Out in the country a small group of houses with usually a store and church is called a *village*. A village may grow into a town and then into a city. Find a village on the map and on the picture on page 250.

Volcano. At the top of the picture on page 250 you will see a mountain which looks as if it were on fire. This is because it has an opening in its top out of which pour molten rock, hot gases, and steam. We call this mountain a *volcano*. Some volcanos are quiet for many, many years and then suddenly burst into action.

Woodlands. You all know that wood comes from trees. Now can you guess what woodlands are? Yes, of course; land covered with trees. If you will look at the picture on page 251, you will find the lake. Look along its shore and you will find woodlands. Be sure to find them also on the map below.

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